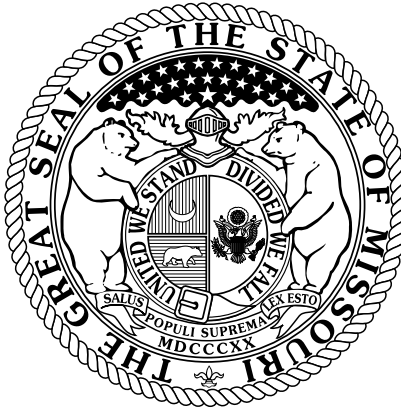




STRATEGIES FOR PREVENTING CHILD DEATHS IN MISSOURI

The Missouri Child Fatality
Review Program
Annual Report for 2001





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State of Missouri

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Strategies for Preventing Child Deaths in Missouri

The Missouri Child Fatality Review Program Annual Report for 2001



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April 1, 2003

Dear Friends:

Based on the need to better understand how and why children die, Missouri's Child Fatality Review Program (CFRP) was implemented on January 1, 1992. Although the program has evolved and adapted to meet new challenges, the objectives have remained the same — identifying potentially fatal risks to infants and children, and responding with multi-level prevention strategies. While many factors can be attributable to the decrease in the death rate of Missouri children over the past decade, we believe the CFRP has made a significant contribution to this decrease.

Most states now have some form of child fatality review; however, Missouri's approach remains unique in that it is community driven with a statewide scope. The State Technical Assistance Team (STAT) manages the CFRP and also provides a comprehensive and integrated system of services and support to the entire child protection community. The 115 county-based, multidisciplinary CFRP panels can respond immediately to risks in their communities identified during the review process. What they learn is collected on standardized data collection forms and submitted to a database that identifies statewide trends and patterns, which may require policy and legislative considerations. Beyond Missouri, our program has become a national and international model.

The 2001 Child Fatality Review Program Annual Report is the result of work and contributions by the hundreds of CFRP panel members and their supporting agencies. Their work is a true expression of advocacy for Missouri's children and families.

Sincerely,


Harry D. Williams
Director

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Dedication

This report reflects the work of many dedicated professionals throughout the state of Missouri. Through better understanding of how and why children die, we strive to improve and protect the lives of Missouri's youngest citizens. We will always remember that each number represents a precious life lost. We dedicate this report to these children and their families.

MISSOURI CHILD FATALITY REVIEW PROGRAM

Child Death Review in Missouri

Death rates for infants, children, and teens are widely recognized as valuable measures of child well-being, particularly when viewed within the context of a decade of demographic changes in our state. However, it is the accuracy of key factors associated with child deaths that provides the basis for identifying vulnerable children and responding in ways that will protect and improve their lives. In 1995, the U.S. Advisory Board on Child Abuse and Neglect concluded that child abuse and neglect fatalities and other serious and fatal injuries to children could not be significantly reduced or prevented without more complete information about why these deaths occur and how such tragedies might be avoided. It was widely acknowledged that many child abuse and neglect deaths were underreported and/or misclassified. Scholars, professionals, and officials around the nation had agreed that a system of comprehensive Child Death Review Teams could make a major difference. In 1991, Missouri had initiated the most comprehensive child fatality review system in the nation, designed to produce an accurate picture of each child death, as well as a database providing ongoing surveillance of all childhood fatalities. The Missouri Child Fatality Review Program was presented in the Advisory Board's report as a state of the art model. While the program has evolved and adapted to meet new challenges, the objectives have remained the same—identifying potentially fatal risks to infants and children, and responding with multi-level prevention strategies.

In Missouri, all fatality data is collected by means of standardized forms and entered into a database. What is learned can be used immediately by the community where the death occurred. The sum of statewide data is used to identify trends and patterns requiring systemic solutions. The Missouri Child Fatality Review Program has succeeded in remaining effective, relevant and sustainable over 10 years. The success of the program is due in large part to the support of panel members, administrators and other professionals who do this difficult work voluntarily because they understand its importance. This work is a true expression of advocacy for children and families in our state.

Missouri legislation requires that every county in our state (including the City of St. Louis) establish a multidisciplinary panel to examine the deaths of all children under the age of 18. If the death meets specific criteria, or if requested by the coroner/medical examiner, it is referred to the county's multidisciplinary CFRP panel. The minimum core panel for each county includes: Coroner/Medical Examiner, Law Enforcement, Family Court, Emergency Medical Services, Prosecutor, Public Health and Division of Family Services. Optional members may be added at the discretion of the panel. The panels do **not** act as investigative bodies. Their purpose is to enhance the knowledge base of the mandated investigators and to evaluate the potential service and prevention interventions for the family and community.

Of all child deaths in Missouri, about 1200 deaths annually, approximately one-third merit review. To come under review, the cause of the child's death must be unclear, unexplained, or of a suspicious circumstance. All sudden, unexplained deaths of infants one week to one year of age, are required to be reviewed by the CFRP panel. (This is the only age group for which an autopsy is mandatory.)

STATE TECHNICAL ASSISTANCE TEAM AND CHILD FATALITY REVIEW PROGRAM

Missouri State Statutes

- Section 210.150 and 210.152 (Confidentiality and Reporting of Child Fatalities)
- Section 210.192 and 210.194 (Child Fatality Review Panels)
- Section 210.195 (State Technical Assistance Team - duties)
- Section 210.196 (Child Death Pathologists)
- Section 211.321; 219.061 (Accessibility of juvenile records for child fatality review)
- Section 194.117 (Sudden Infant Death); infant autopsies
- Section 58.452 and 58.722 (Coroner/Medical Examiners responsibilities regarding child fatality review)

Confidentiality Issues (RSMo 210.192 to 210.196)

A proper Child Fatality Review Program (CFRP) review of a child death requires a thorough examination of all relevant data, including historical information concerning the deceased child and his/her family. Much of this information is protected from disclosure by law, especially medical and child abuse/neglect information. Therefore, CFRP panel meetings are always closed to the public and cannot be lawfully conducted unless the public is excluded. Each CFRP panel member should confine his or her public statements only to the fact that the panel met and that each panel member was charged to implement their own statutory mandates.

In no case, should any other information about the case or CFRP panel discussions be disclosed. All CFRP panel members who are asked to make a public statement should refer such inquiries to the panel spokesperson. Failure to observe this procedure may violate Division of Family Services' regulations, as well as state and federal confidentiality statutes that contain penalties.

Individual disciplines (coroner/medical examiners, sheriff departments, prosecuting attorneys, etc.) can still make public statements consistent with their individual agency's participation in the investigation, as long as they do not refer to the specific details discussed at the CFRP panel meeting.

No CFRP panel member is prohibited from making public statements about the general purpose, nature or effects of the CFRP process. Panel members should also be aware that the legislation which established the CFRP panels provides official immunity to all panel participants.

The United States Census 2000

The first United States Census was taken in 1790. Following American independence, there was an almost immediate need for a census of the entire nation. Taking a census every ten years was required by the Constitution to ensure equal representation in the U.S. Congress. Through the years, the nation's needs and interests became more complex. This meant that there had to be statistics to help people understand what was happening and have a basis for planning. The content of the census changed accordingly. In 1810, the census included the first inquiry on the manufacture, quantity and value of products; in 1850, inquiries on social issues, such as taxation, churches, pauperism and crime were added. There were so many more inquiries of all kinds in the censuses of 1880 and 1890 that almost a full decade was needed to publish all the results.

Source: U.S. Census Bureau

Using the 2000 Census Data

Today, census information is used by national, state, and local governments to draw boundaries for legislative districts, allocate funds, and to plan, implement and assess programs and services.

While counting people seems like a relatively simple task, counting accurately is much more challenging. The most common inaccuracy in the census is missing persons. The census commonly misses some groups of people more than others. For example, city dwellers and people with lower incomes are more likely to be missed. Children are more often missed, as are people of color. To make up for these discrepancies, the Census Bureau calculates adjusted numbers, based on results from scientific samples.

Racial categories changed in the 2000 Census and may not be directly comparable to data from the 1990 Census. The 2000 Census had 15 categories and allowed respondents to pick more than one. There are sixty-three possible combinations of race and 123 possible combinations of ethnicity and race. Understanding these issues is important in using census information. Source: Kids Count Missouri

The U.S. Census Bureau began releasing reapportionment data early in 2001. Detailed data is being released continuously through the end of 2003. American citizens have unprecedented access to the 2000 Census data via the Internet. As it is released, most of the information will be available through the American Factfinder website: www.census.gov In Missouri, the Secretary of State's Office and the State Demographer in the Office of Administration provide census data analysis. Several entities perform census data analysis directly related to children's issues that can also be accessed via the Internet:

- University of Missouri, Office of Social and Economic Data Analysis (OSED), www.oseda.missouri.edu
- Citizens for Missouri's Children, www.mokids.org
- Missouri Department of Health and Senior Services, www.health.state.mo.us
- Proximity, data by school district, www.proximityone.com

The Child Population in Missouri

Detailed census data analysis is key to planning effective programs and services that protect children and improve their lives and to targeting certain areas with specific needs. Kids Count in Missouri Data Book provides details of changing dynamics across the nation that affect children and compares demographic information for Missouri with the rest of the U.S. The University of Missouri's Office of Social and Economic Data Analysis (OSED) has already produced detailed analyses of trends in our state that impact children.

We have more children than ever before in Missouri. Census data places the child population at 1,427,692, an increase of 8.5% since 1990 (slightly less than the 9.3 % increase for the population overall.) However, like the rest of the country, the percentage of older adults continues to increase; therefore, children now represent a shrinking proportion of the total population in Missouri.

In the last decade, seven counties saw declines in numbers of children greater than 10%; the City of St. Louis continues to experience population loss among all ages. Meanwhile, Stone, Christian and Taney counties showed dramatic increases (49.4, 60.4 and 67.8 percent respectively) as the Branson area continues to boom.

Missouri's children have become more racially and ethnically diverse. Children of Hispanic origin are the most rapidly increasing group. (According to the census, Hispanic is considered an ethnicity, which may be of any race.) The number of Hispanic children more than doubled during the last decade and now stands at 42,630.

In Missouri, single-parent families now account for 24.3 percent of children, up from 18.7 percent in 1990. There are more single fathers with primary custody of their children and more children living in a home maintained by a grandparent.

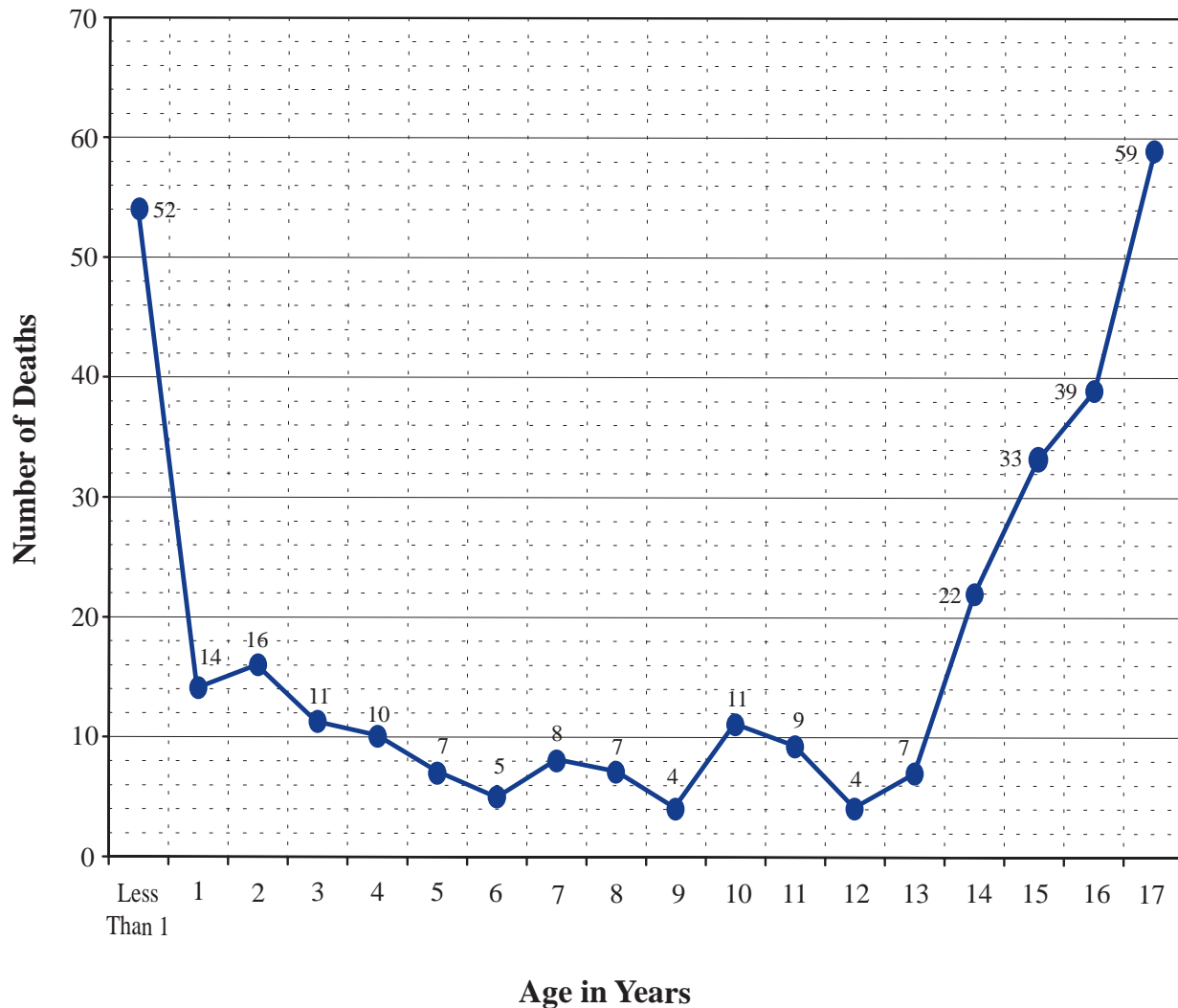
Source: OSED, Missouri Youth Database Project

Child Deaths in Missouri

Child fatalities represent the extreme of all issues that have a negative impact on children. While the number of deaths of children reported to the Child Fatality Review Program (CFRP) remained relatively stable over the past decade, the rate of child deaths has decreased. According to the Missouri Department of Health and Senior Services, the death rate for children ages 1-14 has dropped from 32.7 per 100,000 to 26.5 per 100,000 (based on five-year aggregate data, to allow for more stable rates). While there are many reasons for these decreases, certainly Missouri's Child Fatality Review Program has been a major contributing factor.

The rate of death among infants, less than one year of age, has also shown a steady decline during the last decade, from 9.6 to 7.5 per 1,000 live births, according to the Department of Health and Senior Services (also based on five-year aggregate data). Most infant deaths are related to prematurity, congenital anomalies, infection and other conditions, most of which occur with the first three days of life. Beyond illness/natural cause, infants and toddlers are especially vulnerable to fatal injury and neglect, particularly due to child abuse, unintentional suffocation, and lack of supervision.

Children Who Died In 2001 Due to Injury / Neglect



This “inverted bell” graph demonstrates the relationship between age and death among children due to injury. Infants and young children are more vulnerable to serious and fatal injury, whether intentional or unintentional, because of physical and behavioral characteristics related to growth and development. Teens, on the other hand, are prone to engage in risk-taking behaviors that contribute to death and serious injury, primarily from motor vehicle crashes. The rate of violent deaths among teens rose for a period of time in the early 1990’s, from 81.3 to 90.8 per 100,000 (ages 15-19), but declined dramatically in recent years to 58.6 per 100,000 (Missouri Department of Health and Senior Services). New state legislation requiring graduated licensing for teens took effect in January, 2001. It is anticipated that this law will significantly reduce fatal injuries among teen drivers and their passengers in Missouri, as it has in other states.

SECTION ONE:

Missouri Incident Fatalities

“A simple child,
That lightly draws its breath,
And feels its life in every limb,
What should it know of death?”

- William Woodsworth

In reviewing this report, the reader should be aware of some important definitions and details about how child deaths are reported and certified in Missouri, summarized here: (Please refer to Appendix 6, Definitions of Important Terms and Variables, for additional information.)

- **“Missouri Child Fatalities”** refers to all children age 17 and under, who died in Missouri, without regard to the state of residence or the state in which the illness or injury occurred. (For example, a child who is a resident of Kentucky, injured in a motor vehicle crash in Illinois and brought to a Missouri hospital, where he or she subsequently dies, would be counted as a “Missouri Child Fatality.” This death would be reported to the Child Fatality Review Program on a Data Form 1, Section A, as an out-of-state event.)
- **“Missouri Incident Fatality”** refers to a *fatal injury, event or illness*, which occurs *within the state of Missouri*. (This is not necessarily the county or state in which the child resided.) If the death meets the criteria for panel review, it is reviewed in the county in which the fatal injury, event or illness occurred.
- Every Missouri incident child fatality is required to be reviewed by the coroner or medical examiner and the chairperson for the county Child Fatality Review Panel. The findings of that review are reported on the Data Form 1.
- Any child death that is *unclear, unexplained, or of a suspicious circumstance, and all sudden, unexplained deaths of infants one week to one year of age* are required to be reviewed by a county-based Child Fatality Review Panel. Panel findings are reported on the Data Form 2. Panel members receive annual training on the investigation of child deaths.
- **Multiple-Cause Deaths:** Cause of death is a disease, abnormality, injury or poisoning that contributed directly or indirectly to death. However, a death often results from the combined effect of two or more conditions. Because the Child Fatality Review Program is focused on the prevention of child fatalities, the precipitating events are of particular concern. Therefore, deaths are categorized according to the circumstances of the death, which may not be the immediate cause of death listed on the death certificate. (An example would be a child passenger in a car that runs off the road and lands in ditch full of water; the “immediate cause of death” is listed on the death certificate as “drowning,” but the precipitating event was a motor vehicle accident. This death would be reported in the Motor Vehicle Fatalities section, with a footnote indicating that the death certificate lists “drowning” as the immediate cause of death.)

- The Child Fatality Review Program data management unit links data collected on the Data Forms 1 and 2 with Department of Health and Senior Services birth and death data. Every attempt is made to reconcile the two systems; however, in some cases, crucial data components are incomplete and are noted, as appropriate.
- All deaths included in this 2001 CFRP Annual Report occurred in calendar year 2001. Some of the cases reviewed may not have been brought before a county panel until the year 2002.
- In some cases, panels did not complete all of the information requested on the data form.
- Of the 481 Missouri Incident Fatalities reported on a Data Form 1 in 2001, 29 did not receive required CFRP panel review or panel findings were not submitted on a Data Form 2. It should be noted, however, that 17 of these (59%) were motor vehicle fatalities; a policy change including all motor vehicle fatalities as criteria for review took effect in 2001. These 29 fatalities are included in this 2001 CFRP Annual Report because the data, though incomplete, is useful and accurate within the limitations of the Data Form 1 information.
- In 2001, 42 Missouri Incident Fatalities were not reported on either a Data Form 1 or Data Form 2, but were reported to CFRP by death certificates from the Department of Health and Senior Services and other data sources. Eighteen of these 42 fatalities (43%) had at least one indication for review. These fatalities are not included in the data for this annual report.

Summary of Findings, Missouri Incident Fatalities, 2001

In 2001, **1146** children age 17 and under died in Missouri. Of those deaths, **1032** were determined to be “Missouri incident fatalities” and, therefore, subject to review by the coroner or medical examiner. Of the 1032 deaths, **481** had an indication for review by a county Child Fatality Review Panel and of those **452** were reviewed and a Data Form 2 completed.

Figure 1. Missouri Child Fatalities vs. Missouri Incident Fatalities

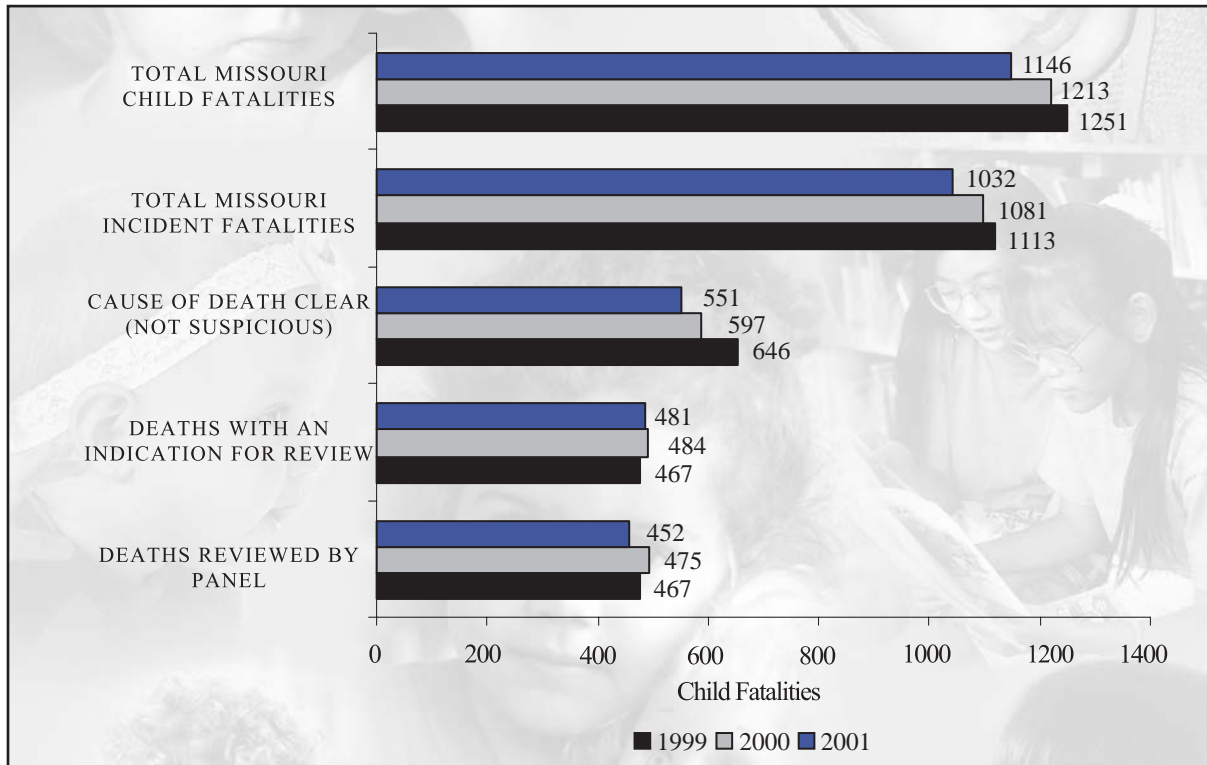
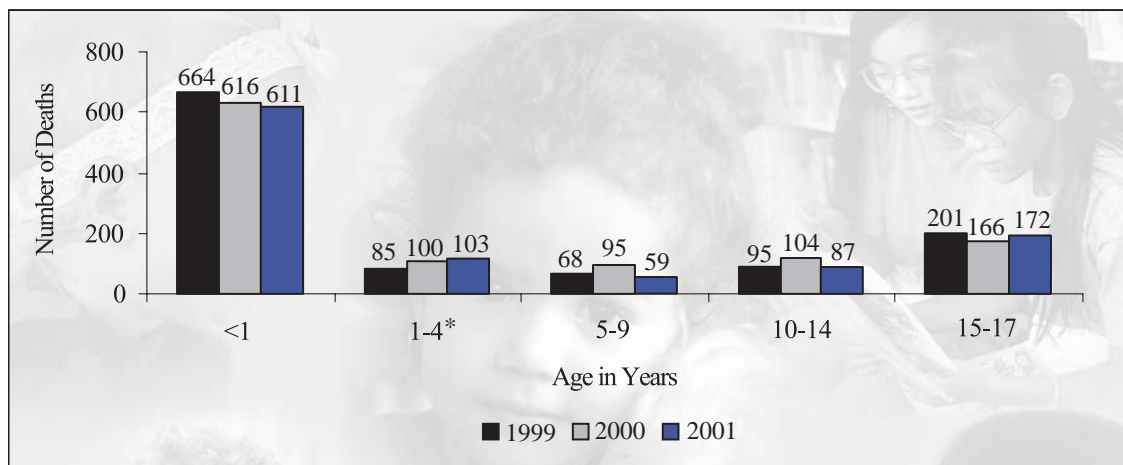


Figure 2. Missouri Incident Fatalities by Age



* Includes one child believed to be three years of age at time of death.

Figure 3. Missouri Incident Fatalities by Sex and Race

Sex	1999	2000	2001	Race	1999	2000	2001
Female	440	463	421	White	770	787	706
Male	673	618	611	Black	328	284	310
				Other	15	10	16
	1,113	1,081	1,032		1,113	1,081	1,032

Figure 4. Missouri Incident Fatalities by Manner

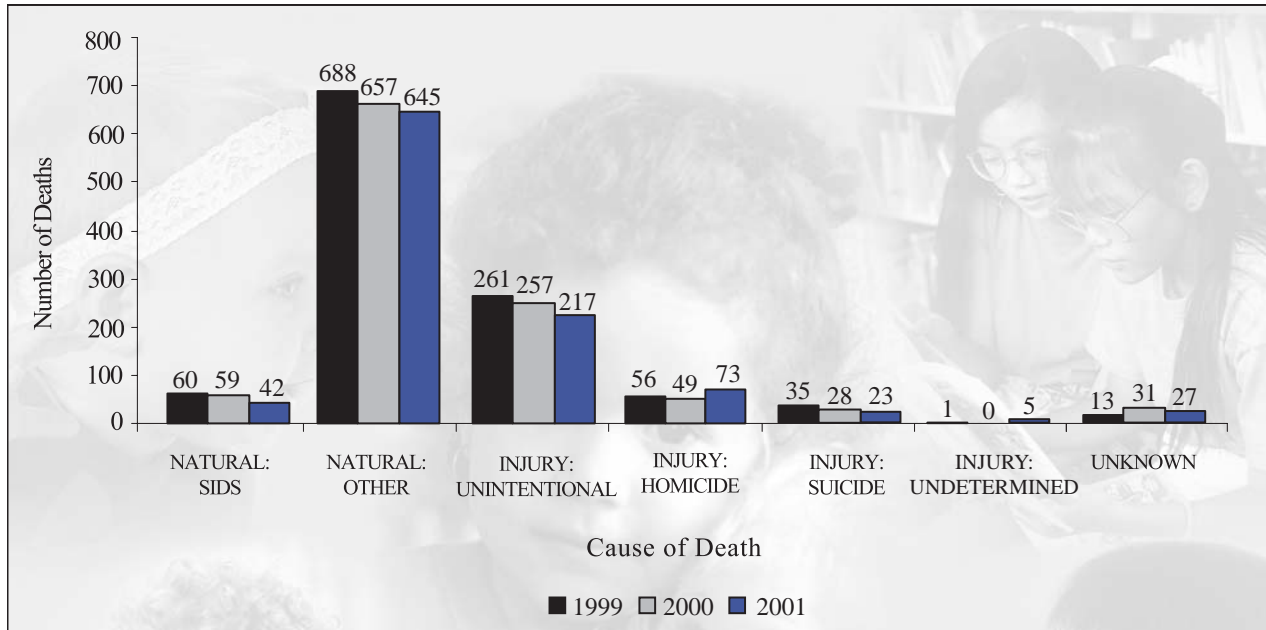
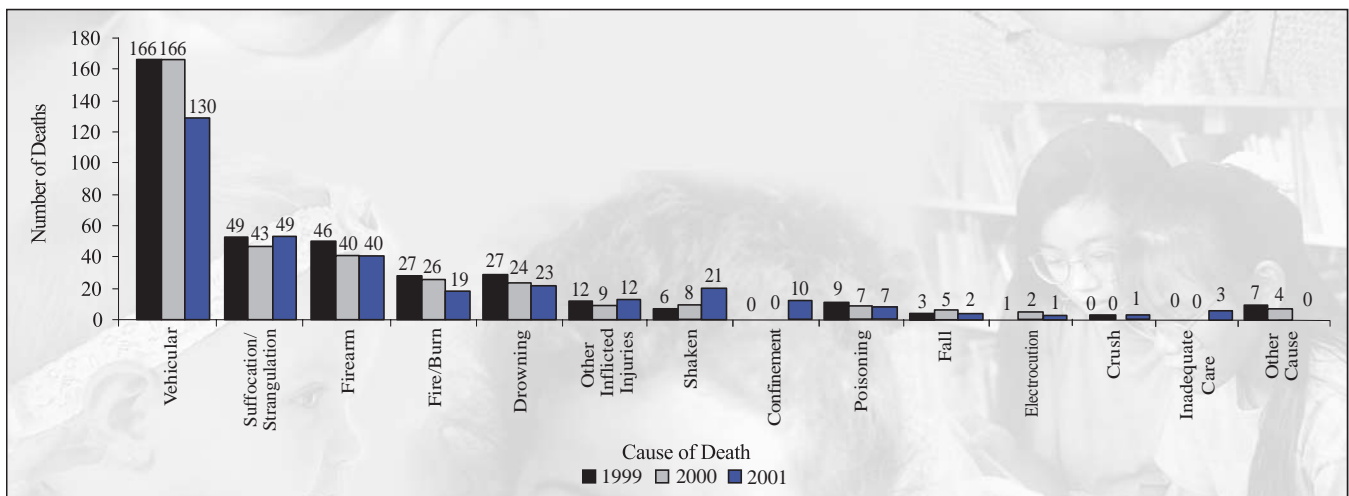


Figure 5. Leading Cause of Injury Deaths



Prevention Findings: The Final Report

“Injury is a problem that can be diminished considerably if adequate attention and support are directed to it. Exciting opportunities to understand and prevent injuries and to reduce their effects are at hand. The alternative is the continued loss of health and life to predictable, preventable and modifiable injuries.”

-Dr. William Foege, Former Director of the Centers for Disease Control

The difference between a fatal and nonfatal event is often only a few feet, a few inches, or a few seconds. In the past, most people believed that serious and fatal injuries were random or unavoidable events, or simply the result of individual carelessness. Fortunately, the science of injury prevention has moved away from this fatalistic approach to one that focuses on the environment and products used by the public, as well as individual behavior. Injuries are now widely recognized as understandable, predictable and preventable.

A *preventable child death* is defined as one in which awareness or education by an individual or the community may have changed the circumstances that lead to the death. Prior to August of 2000, CFRP panels were asked to report their conclusions and prevention responses for each death reviewed on the Data Form 2. Legislation passed in 2000 now requires that the panel complete a Final Report, summarizing their findings in terms of circumstances, prevention messages, and community-based prevention initiatives.

The death of a child is a sentinel event that captures the attention of the community, creates a sense of urgency and a window of opportunity to respond to the question, “What can we do?” County-based prevention activities serve to raise awareness, educate parents and caretakers, influence public policy and involve the community in prevention initiatives that protect and improve the lives of children. In 2001, CFRP panels throughout our state reported their findings and prevention responses utilizing The Final Report. The initiatives highlighted below demonstrate how a few volunteer professionals have been able to measurably reduce or eliminate threats to the lives and well being of countless Missouri children.

Legislation, Law or Ordinance:

A 6-year-old girl died in a rural northwestern town trailer fire that was started by grease left unattended on the stove. The trailer did not have smoke alarms and the fire blocked the only available exit. The local CFRP panel requested that the trailer parks pass an ordinance to require working smoke detectors in all trailers. The panel also released several fire prevention tips in the local newspaper.

An 11-year-old boy was killed in a jet ski collision. Statutes require watercraft operators to be 14-year-olds. The county CFRP panel suggested that the statutes should be posted at the lake, docks and entrances and that safety training be provided before children are allowed to operate jet skis. The panel also encouraged the Water Patrol to strictly enforce these rules.

A 1-year-old male was killed when a drunk driver struck the vehicle in which he was riding. The county CFRP panel recommended new legislation that would require stiff penalties in cases of vehicular manslaughter resulting from wantonly reckless behavior.

Community safety project:

A 3-year-old boy was playing with a cigarette lighter when a fire started in the bedroom. Smoke detectors were not present. In response to this fatality, the fire department canvassed the neighborhood with smoke detectors and sent messages through the media on fire prevention.

A 9-year-old girl was killed in a car accident when the vehicle she was riding in went off the road and down a steep embankment. While discussing this death, the local panel discovered that this dangerous stretch of road in southeast Missouri had been the scene of many deaths over the years. They responded with a letter to the Missouri Department of Transportation, requesting that a guardrail be constructed along the road.

Public forums:

A 7-month-old infant girl was asleep with her parents in their adult size bed. They awakened to find the child unresponsive. She had died from an accidental overlay. The southwest county CFRP panel flooded the community with educational materials about safe sleep arrangements and proper bedding for infants.

Educational activities in schools:

A 17-year-old male was killed in an alcohol-related crash on a rural road. Excessive speed and lack of seat belt use contributed to the death. The central Missouri CFRP panel responded to this tragic event by displaying the wrecked vehicle at the high school.

A 16-year-old female was killed in a motor vehicle crash while racing her car at excessive speeds; she was not wearing a seat belt. The panel and other area officials requested the Missouri State Highway Patrol bring the “Stop the Knock,” a public awareness program to the area schools. Parents and teachers were invited to attend with the students.

Educational activities in the media:

A 3-year-old boy was left in a vehicle on an extremely hot day; he died of hyperthermia. The local CFRP panel arranged for area newspapers to publish warnings about the dangers involved in leaving children unattended in vehicles.

Consumer product safety:

A 3-year-old girl drowned in a pool after becoming trapped under a large flotation device. Although she was wearing a flotation vest at the time, it was not designed to hold a child’s face above water. The panel contacted the Consumer Product Safety Action to report the problem with the flotation device.

News services:

An 8-month-old female was found unresponsive in her crib. She had been placed on her stomach and covered with a blanket. In their discussion, the CFRP panel noticed that this infant death was one of several in their community involving soft bedding and unsafe sleep arrangements. In an effort to prevent further deaths, the county panel flooded the news media with “back to sleep” materials and information on safe bedding practices for infants.

An 8-month-old female was placed in her parents’ bed to sleep. A short time later, she was found unresponsive, wedged between the mattress and the wall. After the death, the local panel canvassed the neighborhood and surrounding area with safe sleep brochures. They provided local newspapers with safe sleep information that was published as a public service.

A 3-year-old boy was sent out to play with other neighborhood children on a very warm summer day. Some time later he was found dead in an abandoned car. The young child had apparently become locked in and died of hyperthermia. The local panel went to the local newspaper and other media sources to warn the community about the dangers young children face when they are not supervised adequately.

Changes in agency practice:

An 11-month-old male died after being accidentally over medicated by hospital staff. The local CFRP panel met with hospital staff to review medication labeling and administering procedures.

A 3-year-old male was struck in the head by his father and died. The family had an extensive history of domestic violence and other problems. The panel suggested to the local hospitals that when treating an adult victim for domestic violence, children should also be evaluated for abuse and neglect.

A 4-month-old infant boy died after being struck in the head by his unlicensed child care provider. The childcare provider had previously been brought to the attention of the prosecuting attorney’s office for being unlicensed with too many children in her care. The panel responded by sending a letter to the prosecutor expressing their concern about the apparent lack of response and requesting that licensing regulations be enforced.

Other programs/activities:

A 2-month-old infant girl was sleeping with her parent on a couch, where she died as a result of accidental suffocation due to overlay. The local CFRP panel went to the area hospital to ensure that parents would be warned of the dangers of co-sleeping before taking their newborn home. They also gave the hospitals “Safe Sleep” brochures to hand out.

A 10-month-old female died when the vehicle she was riding in was rear-ended at an intersection. The safety seat she was riding in was not the appropriate size for a small infant and the child strangled on the harness strap. The CFRP panel talked with hospital staff and parents will now be advised on the proper size and use of safety seats.

A 6-day-old male infant was found unresponsive in his parent’s bed. The local panel suggested that the county health department provide more education to new parents on safe sleep for infants. They also arranged for grief support for the parents.

SECTION TWO: Illness/Natural Cause Deaths

All Illness/Natural Cause Deaths Other Than SIDS

“The infant mortality rate has declined steadily during the last decade, due, in part to improved medical technology and public health outreach...Infants are more likely to die before their first birthday if they live in unsafe homes and neighborhoods or have inadequate nutrition, health care or supervision.”

-Kids Count Missouri, Citizens for Missouri's Children and Children's Trust Fund

Illness/natural causes, other than SIDS, were responsible for the deaths of 645 Missouri children in 2001, representing 63% of all Missouri incident fatalities.

Illness/natural cause deaths include prematurity, congenital anomalies, infection and other conditions. Most child deaths are related to illness or other natural cause. The vast majority of natural cause deaths occur before the first year of life and are often related to prematurity or birth defects. Sudden Infant Death Syndrome (SIDS), a natural death, is discussed in the section that follows.

Figure 6. Illness/Natural Cause Deaths by Age

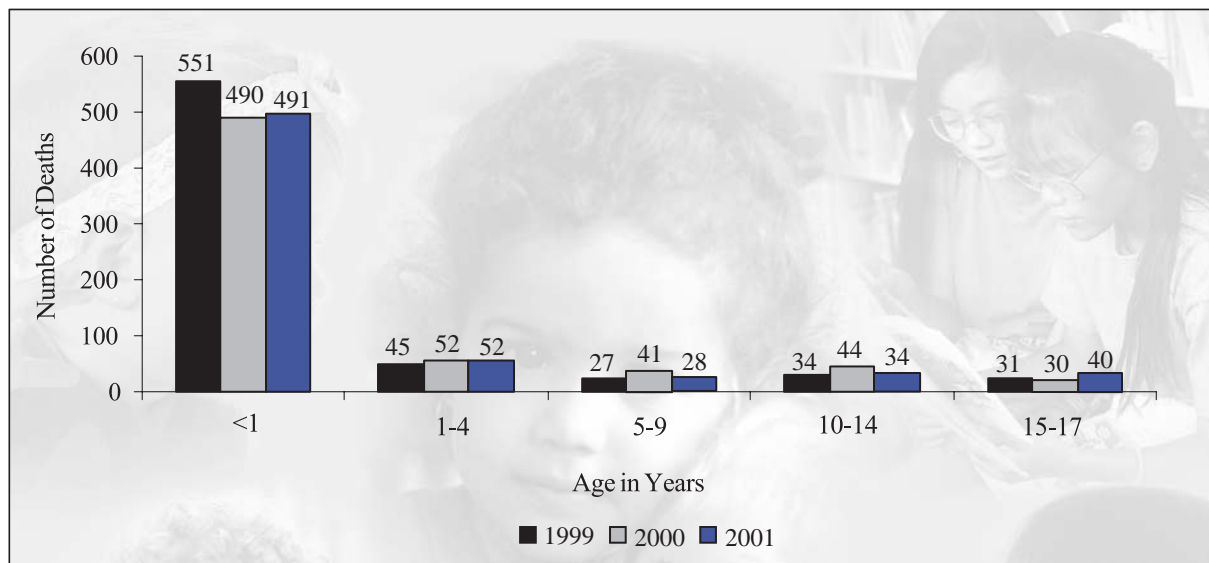


Figure 7. Illness/Natural Cause Deaths by Sex and Race

Sex	1999	2000	2001	Race	1999	2000	2001
Female	296	307	268	White	461	462	433
Male	392	350	377	Black	217	188	201
				Other	10	7	11
	688	657	645		688	657	645

Infants less than one year of age comprised the majority (76%) of illness/natural cause deaths in 2001 with **491**. Of those, **326** (66%), occurred within the first three days of life; **247** (50%) of those occurred within 24 hours of birth.

Figure 8. Children Age Three Days or Less That Died of Illness/Natural Causes

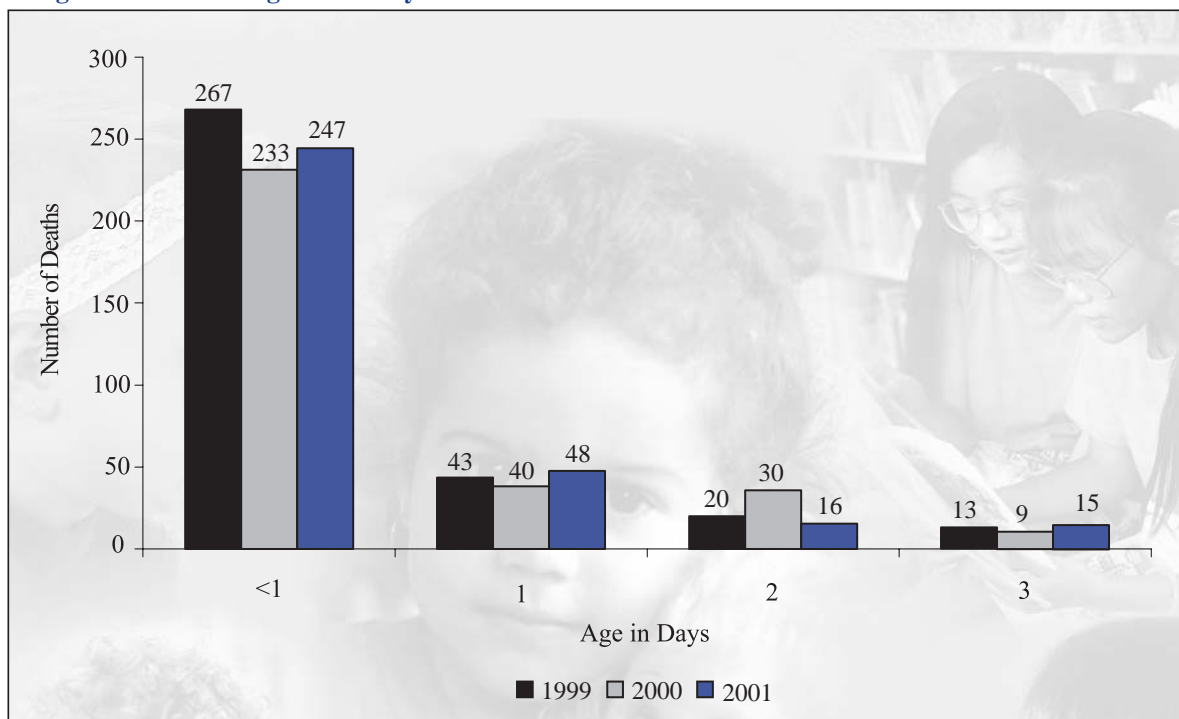


Figure 9. Children Less Than One Year That Died of Illness/Natural Causes by Sex and Race

Sex	1999	2000	2001	Race	1999	2000	2001
Female	233	226	200	White	361	331	305
Male	318	264	291	Black	182	152	177
				Other	8	7	9
	551	490	491		551	490	491

Natural Cause Deaths in Infants Less Than One Year as Reported on CFRP Data Forms

Age at death		Gestational age at birth	
0 - 24 hours	283	<25 weeks	204
24 - 48 hours	22	25 - 30 weeks	64
48 hours - 6 weeks	110	30 - 37 weeks	65
6 weeks - 6 months	50	>37 weeks	63
6 months - 1 year	23	Unknown	68
Not Answered	3	Not Answered	27

Birth weight in grams (approximate lbs/oz)		Multiple births	
<750 (<1 lb 10 oz)	199	Yes	75
750 - 1,499 (1 lb 10 oz - 3 lbs 5 oz)	49	No	378
1,500 - 2,499 (3 lbs 5 oz - 5 lbs 5 oz)	40	Not Answered	38
>2,500 (>5 lbs 5 oz)	73		
Unknown	88		
Not Answered	42		

Medical complications during pregnancy		Smoking during pregnancy		Drug use during pregnancy		Alcohol use during pregnancy	
Yes	13	Yes	12	Yes	13	Yes	6
No	7	No	6	No	9	No	7
Unknown	20	Unknown	24	Unknown	22	Unknown	30

Fetal and Infant Mortality Review (FIMR) and the Child Fatality Review Program

Today, the death of a child, especially the youngest, most vulnerable infant, is viewed as a sentinel event that is a measure of a community's overall social and economic well being, as well as its health. Fetal mortality is defined as the death of a fetus in utero at 20 weeks or more gestation. Infant mortality is defined as the death of an infant before one year of age. (The Missouri Child Fatality Review Program examines the deaths of *all children born live* through age 17.)

Over the past decade, two methods for examining these deaths at a local level have emerged: fetal and infant mortality review (FIMR) and child fatality review (CFRP). While there are a number of distinct and important differences in the two systems, there are also similarities, including basic human concern and advocacy. There are opportunities for local collaboration between the two systems that will benefit children and their families. ("Fetal and Infant Mortality Review and Child Fatality Review: Opportunities for Local Collaboration," NFMIR Bulletin, January 2000).

Sudden Infant Death Syndrome (SIDS)

Sudden Infant Death Syndrome (SIDS) was the cause of death of 42 Missouri infants in 2001, representing 9% of all natural cause deaths of infants less than one year of age.

Representative Cases:

- **Infants should be placed on their backs to sleep.**

A 6-month-old infant girl was placed on her stomach in a full-size bed for a nap. Two hours later she was found unresponsive and not breathing.

A 9-week-old infant girl was found unresponsive in her bassinet during the night. She was placed on her stomach to sleep.

A 7-month-old infant girl was laid down in an adult bed on her stomach after awaking in the night for a feeding. She was found unresponsive and blue the next morning.

A 4-week-old infant girl was placed on her stomach to sleep. She was later found unresponsive in her bassinet face down.

- **The safest place for infants to sleep is in a standard crib with a firm mattress and no soft bedding.**

A 4-month-old male infant was put to sleep in his crib with a heavy blanket covering him. He was later found unresponsive with the blanket up around his face.

An 18-week-old male infant was placed on a sofa with a cover for a nap. He was found 20 minutes later, unresponsive and blue.

A 3-month-old male infant was put to sleep in a waterbed. When checked on later in the evening it appeared the baby had rolled and was found unresponsive, face down.

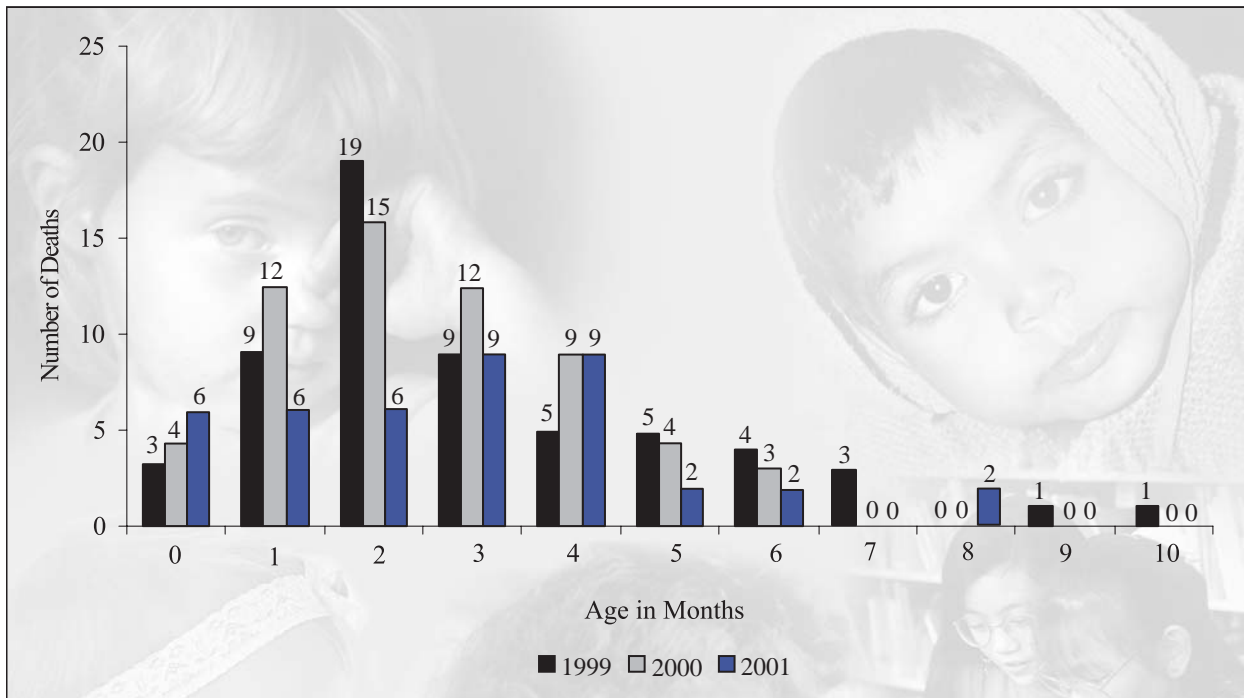
A 10-week-old infant boy with a recent history of congestion was brought to bed with his parents. Mom fell asleep with the baby on her chest and awoke five hours later to find the baby on the floor lifeless.

Sudden Infant Death Syndrome (SIDS) is the sudden, unexpected death of an apparently healthy infant under one year of age, which remains unexplained after the performance of a complete post-mortem evaluation/investigation that includes an autopsy, investigation of the scene of death and review of the case history. SIDS is characterized by the sudden death of an infant during a sleep period. SIDS is a diagnosis of exclusion; there are no pathological markers that distinguish SIDS from other causes of sudden infant death. There are no known warning signs or symptoms. Ninety percent of SIDS deaths occur in the first six months of life, with a peak at 2-4 months. While there are several known risk factors, the cause or causes of SIDS are unknown at this time.

The Triple Risk Model for SIDS is often used to describe the confluence of events that may lead to the sudden death of an infant. This model involves a vulnerable infant, (one with a subtle defect involving brainstem arousal responses) at a critical developmental period (less than six months of age), exposed to environmental challenges to which he/she does not respond (such as overheating, tobacco smoke, or prone sleeping).

SIDS is generally considered a natural manner of death. SIDS is not caused by spitting up, choking or minor illnesses, such as a cold. SIDS is not caused by immunizations; it is not contagious; SIDS is not child abuse. SIDS is not the cause of every sudden or unexpected infant death. In fact, of the **116** sudden unexpected deaths of infants under the age of one year reported to the Child Fatality Review Program in 2001, **42** were diagnosed as SIDS following autopsy, investigation and panel review. The cause of death for the remaining **74** infants included **16** illness/natural cause, **8** homicides, **21** unintentional suffocations, **2** heatstroke, and **27** undetermined.

Figure 10. SIDS Fatalities by Age



Note: In 1999, one child is not included in this chart. Although the cause of death appears to be SIDS, the child was 13 months old.

Figure 11. SIDS Fatalities by Sex and Race

Sex	1999	2000	2001	Race	1999	2000	2001
Female	24	25	24	White	34	41	31
Male	36	34	18	Black	25	18	10
				Other	1	0	1
	60	59	42		60	59	42

Figure 12. SIDS Rate 1994-2001

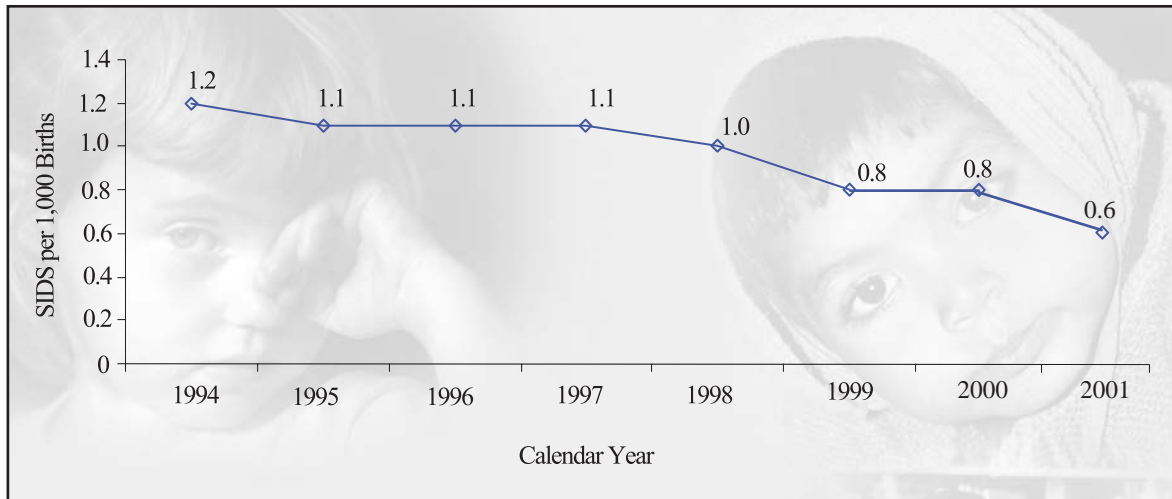
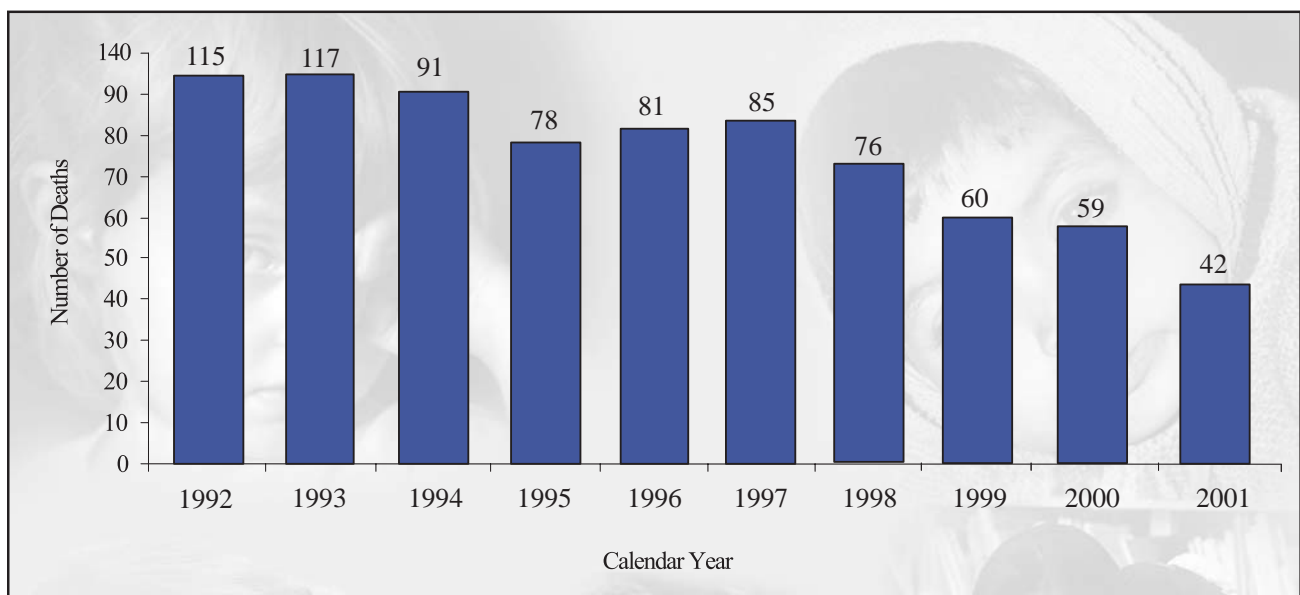


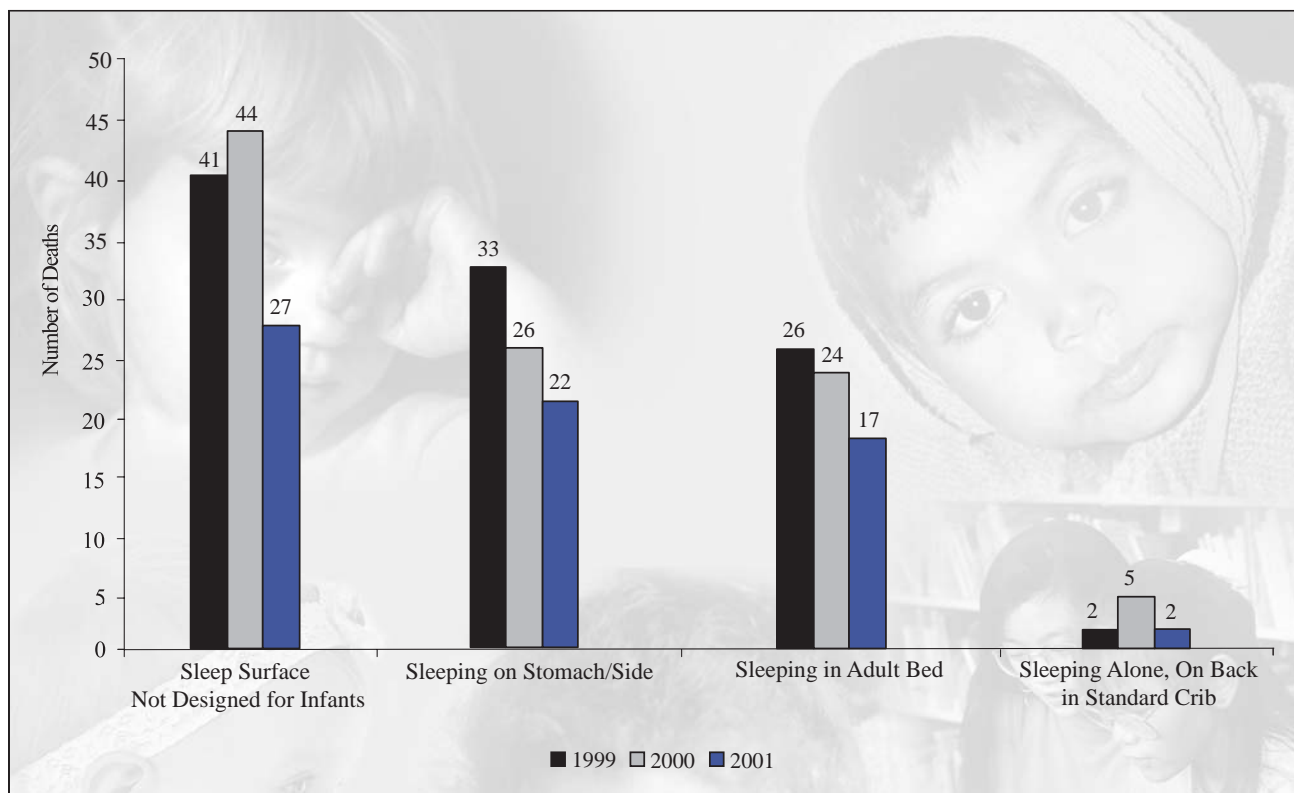
Figure 13. Missouri SIDS Deaths 1992-2001



Recent research findings have resulted in accelerated progress in the understanding of sudden unexpected infant death. Unsafe sleep arrangements are now known to be a highly significant risk factor occurring in the large majority of cases of sudden infant death diagnosed as SIDS, unintentional suffocation and cause undetermined. Unsafe sleep arrangements include any sleep surface not designed for infants, sleeping with head or face covered, and sharing a sleep surface.

In Missouri, of the **42** sudden unexpected infant deaths reviewed by county panels and diagnosed as SIDS in 2001, **22** (52%) were known to be sleeping on their stomach or side. **Twenty-seven** (64%) of those infants were not sleeping in a standard crib on a firm mattress. **Seventeen** (40%) were sleeping in an adult bed. *Only 2 (5%) sudden infant deaths diagnosed as SIDS were known to be sleeping alone on their backs in a standard crib with head and face uncovered.*

Figure 14. Missouri SIDS Deaths, 1999-2001: Sleep Environment



“Infant mortality is the most sensitive index we possess in social welfare.”

*-Julia Lathrop
Children’s Bureau, 1913*

A SAFE SLEEPING ENVIRONMENT FOR YOUR BABY

The American Academy of Pediatrics, the Consumer Product Safety Commission and the National Institute of Child Health and Human Development have revised their recommendations on safe bedding practices when putting infants down to sleep. Here are the revised recommendations to follow for infants under 12 months:



Safe Bedding Practices For Infants

- Place baby on his/her back on a firm tight-fitting mattress in a crib that meets current safety standards.
- Remove pillows, quilts, comforters, sheepskins, stuffed toys and other soft products from the crib.
- Consider using a sleeper or other sleep clothing as an alternative to blankets, with no other covering.
- If using a blanket, put baby with feet at the foot of the crib. Tuck a thin blanket around the crib mattress, reaching only so far as the baby's chest.
- Make sure your baby's head remains uncovered during sleep.
- Do not place baby on a waterbed, sofa, soft mattress, pillow or other soft surface to sleep.

Placing babies to sleep on their backs instead of their stomachs has been associated with a dramatic decrease in deaths from Sudden Infant Death Syndrome (SIDS). Babies have been found dead on their stomachs with their faces, noses and mouths covered by soft bedding, such as pillows, quilts, comforters and sheepskins. However, some babies have been found dead with their heads covered by soft bedding even while sleeping on their backs.

Risk Reduction Recommendations:

The following risk reduction recommendations are from SIDS Resources, Inc., the SIDS Alliance and the American Academy of Pediatrics.

For parents:

- *Sleep position:* Infants should be placed on their backs to sleep throughout the first year of life.
- *Bedding:* Avoid soft bedding. Place baby on a firm tight-fitting mattress in a crib that meets current safety standards. Avoid placing the baby on soft quilts or comforters, sofas, pillows, waterbeds or sheepskins. Stuffed animals should not be placed in the crib with the baby. Avoid using bumper pads.
- *Temperature:* To avoid overheating, do not overdress the baby or over-bundle the baby.
- *Smoking:* Avoid smoking during pregnancy. Create a smoke-free environment around the baby after birth.
- *Breastfeeding:* Mothers should be encouraged to breastfeed. Some researchers have found that breastfeeding is a protective factor for SIDS.
- *Prenatal care and well-baby care.*

For community leaders and policy makers:

- *Support Safe-Sleep campaigns.*

For professionals:

- Newborn nursery personnel, physicians, nurses and public health officials should instruct all new parents and child care personnel in safe sleeping practices and other strategies to reduce the risk of SIDS.

For Child Fatality Review Panels:

- All sudden, unexplained deaths of infants <1 year of age require autopsy by a child death pathologist and review by a county CFRP panel. The data pertaining to infant deaths is critical in identifying risk factors for SIDS and providing targeted prevention messages for parents.

Something We Can Do: The Safe Crib-Safe Sleep Campaign

The safest place for an infant to sleep is in a standard crib, on his or her back without soft bedding or toys of any kind. The American Academy of Pediatrics, the Consumer Product Safety Commission and the National Institute of Child Health and Human Development have revised their recommendations on safe bedding practices when putting infants down to sleep to incorporate this new information. Unfortunately, many parents have not received this information and, for a variety of reasons, are unable to provide a safe crib for their infant.

The Safe Crib Project provides a safe, new crib to families in need, along with critical parent education about safe sleep arrangements for infants. Funded by the Children's Trust Fund (CTF), this prevention model was designed and implemented in 1995 in response to sudden infant deaths brought to the attention of the CFRP panels in the St. Louis metro area. The St. Louis model continues today as a self-sustaining program that has served hundreds of families. In communities throughout Missouri, social service agencies, community health agencies, hospitals and similar organizations have collaborated to implement the Safe Crib Project, using funding from CTF. The goal of this innovative project is to save infant lives and support families. For additional information about CTF, active Safe Crib Projects or funding opportunities, please contact CTF at 573-751-5147 or visit www.ctf4kids.org.

Resources and Links:

Safe Bedding Practices for Infants:

Consumer Product Safety Commission
American Academy of Pediatrics

www.cpsc.gov
www.aap.org

SIDS Resources, Inc., 143 Grand, St. Louis, MO 63122 800-421-3511
Counseling and support, research, training and education throughout Missouri.

Children's Trust Fund
"Safe Crib-Safe Sleep" Campaign

www.ctf4kids.org
573-751-5147

Sudden Unexpected Death: A Guide for Missouri
Coroners and Medical Examiners

www.dss.state.mo/stat/index.html



Safe Crib – Safe Sleep

SECTION THREE:

Unintentional Injury Deaths

Unintentional injuries were responsible for the deaths of 217 Missouri children in 2001, representing 21% of all Missouri incident fatalities.

Unintentional injuries are the leading killer of children ages 1-17. Each year in the United States, approximately 7,200 children ages 14 and under are killed, and 50,000 are permanently disabled. More children, ages 1-17, die from unintentional injuries than from all childhood diseases combined. Injury is the leading cause of child hospitalization. For every child who dies from a preventable injury, 40 others are hospitalized and 1120 are treated in emergency rooms. (*Children's Safety Network*)

Motor Vehicle Fatalities

There were 127 motor vehicle fatalities among Missouri children in 2001 which represents 59% of all unintentional injury deaths.

“We use the term ‘crash’ instead of ‘accident’ because we want people to realize that when cars run into each other, or run off the road and hit something or crash into something it is almost always caused by driver error - it is seldom an ‘accident’”

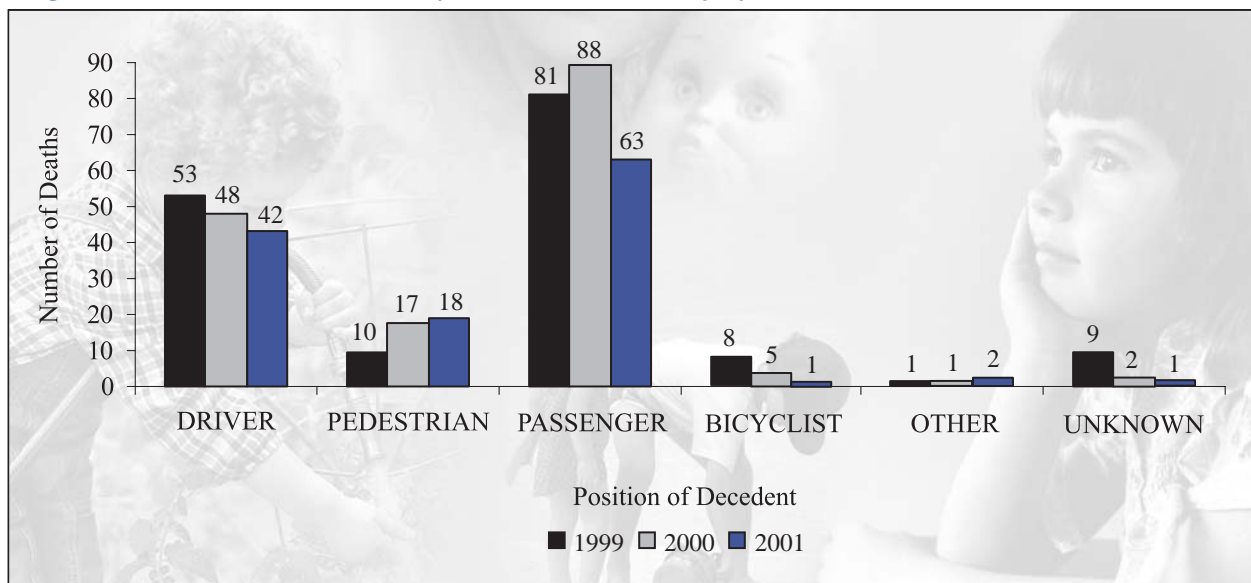
- Missouri State Highway Patrol

Motor vehicle crashes remain the leading cause of unintentional injury deaths among Missouri's children, ages 1-17. Motor vehicle fatalities include drivers and passengers of motor vehicles, pedestrians who are struck by motor vehicles, bicyclists and occupants of any other form of transportation. Of the **127** motor vehicle deaths among Missouri children in 2001, **107** (84%) were reviewed by county panels.

Figure 15. Motor Vehicle Fatalities by Sex and Race

Sex	1999	2000	2001	Race	1999	2000	2001
Female	53	63	52	White	149	143	108
Male	109	98	75	Black	11	16	18
				Other	1	2	1
	162	161	127		162	161	127

Figure 16. Motor Vehicle Fatalities by Position at Time of Injury



Motor Vehicle Fatalities as Reported on CFRP Data Forms

Type of vehicle			
Car	70	Other farm vehicle	0
Truck/RV/Van	31	All-terrain vehicle	3
Motorcycle	1	Semi/Tractor trailer unit	0
Bicycle	2	Other	2
Riding mower	0	Unknown	0
Farm tractor	0	Non-applicable	18

Conditions of road	
Normal	93
Loose gravel	7
Wet	14
Ice or snow	1
Other	3
Unknown	9

Restraint used		Primary cause of accident	
Present, not used	53	Speeding	31
None in vehicle	1	Carelessness	28
Used correctly	24	Mechanical failure	1
Used incorrectly	2	Weather	10
Unknown	20	Driver error	34
Not applicable	27	Other	13
		Unknown	10

Alcohol and/or other drug use	
Decedent impaired	6
Driver of decedent's vehicle impaired	6
Driver of other vehicle impaired	8
Not applicable	60
Helmet Used - Bicycle	
Helmet worn	2
Helmet not worn	3
Not applicable	116
Unknown	6

Driver and Passenger Fatalities

Representative Cases:

- **Children age 4 years and under should ride appropriately restrained in a child safety seat.**

A 3-year-old girl was riding unrestrained in the front seat of a car that was involved in a motor vehicle crash. The girl's fatal injuries were a direct result of not being properly restrained. The driver of the car was charged with child endangerment.

- **The most significant risk factors among teen drivers are inexperience, low rates of seatbelt use and alcohol.**

A 17-year-old male was the unrestrained passenger of a vehicle traveling at speeds in excess of 120 mph. The car left the road and rolled, ejecting the victim and causing massive injuries. Both the driver and passenger tested positive for a controlled substance.

One hundred five of the **127** motor vehicle deaths in Missouri in 2001 involved drivers and passengers. The National Center for Injury Prevention and Control lists two factors as most significant in contributing to motor vehicle related fatalities among children: (1) unrestrained children and (2) drunk drivers.

Unrestrained children refers to infants and toddlers who are not riding in properly installed car seats and older children whose seatbelts are not fastened. **Thirty-seven** of the child passenger fatalities in Missouri in 2001, were known to be riding unrestrained. **Six** of those were children age 4 and under. Missouri law requires restraint for children under age 4 and allows for primary enforcement, meaning that a police officer can stop and cite the driver solely for violation of the restraint law. The National Safe Kids Campaign reports that 40% of children age 4 and under ride unrestrained, placing them at twice the risk of death and injury as those riding restrained. The most common reasons restrained children are killed are misuse of child safety seats and premature graduation to safety belts. It is estimated that approximately 80% of children who are placed in child safety seats are improperly restrained.

Alcohol interferes with driving because it impairs the driver's mental and physical abilities. In 2001 the Missouri Department of Mental Health, Division of Alcohol and Drug Abuse released the results of a survey conducted in the spring of 2000. The survey included more than 10,000 students in grades 6, 8, 10, and 12 in public and private schools in Missouri. Results were alarming: "Alcohol use is so prevalent among Missouri youth that 8 of 10 high school seniors admitted last year to some use during their lifetimes and more than half said they had been drinking within the previous month." (Jefferson City News Tribune, June 10, 2001) The Missouri Youth Risk Behavior Survey 2001 revealed that 33% of youth surveyed admitted riding with a drinking driver during the month preceding the survey and 48% admitted drinking during the previous month; 34% reported episodic heavy drinking during the previous month.

According to the National Center for Injury Prevention and Control, the most significant risk factors among teenage drivers are inexperience, low rates of seatbelt use and alcohol. Inexperienced drivers lack the perception, judgment and decision-making skills that take practice to acquire. Missouri's graduated licensing for teens took effect in January 2001. Graduated licensing systems are designed

Teens are required to graduate through three licensing stages before receiving an unrestricted license. In states with GDL systems, teen fatality rates have been reduced as much as 43%. While it is not yet possible to assess the full impact of these new laws in our state, preliminary data appear positive. It is important to note, however, that graduated licensing must be combined with education for parents and teens about risks to teen-age drivers, including the dangers of underage drinking, speeding, inattention and seat belts.

Seatbelts are known to reduce the risk of a fatal motor vehicle injury by as much as 45%. There is a low rate of seatbelt use among teens. The 2001 Missouri Youth Risk Behavior Survey found that 19% of students reported that they never or rarely wore a seatbelt when riding in a car driven by someone else. **Seventy-nine** (62%) of motor vehicle fatalities among children in Missouri in 2001 were teenagers, age 15-17. **Forty-five** (57%) were known to be unrestrained at the time of the crash.

Pedestrian Fatalities

Representative Cases:

- **Young children require constant supervision.**

A 5-year-old girl was sent outside to play by herself while dinner was being prepared. An on-coming motorist struck the girl as she stepped out between two parked cars.

While on a family outing, a 6-year-old boy asked to go to the park while the adult took a nap. A short time later, the boy was struck by a truck as he attempted to cross the highway.

Of the **127** motor vehicle fatalities among children in Missouri, **18** were pedestrians. **Six** of those were age 4 and under; **6** were between the ages of 5 and 9.

The following is a summary of information provided by the National Safe Kids Campaign:

Children are particularly vulnerable to pedestrian death, because they are exposed to traffic threats that exceed their cognitive, developmental, behavioral, physical and sensory abilities. This is exacerbated by the fact that parents overestimate their children's pedestrian skills. Children are impulsive and have difficulty judging speed, spatial relations and distance.

Toddlers (ages 1 and 2 years) sustain the highest number of pedestrian injuries, primarily due to their small size and limited traffic experience. More than half of all pedestrian injuries involving toddlers occur when a vehicle is backing up. Young children are at increased risk of pedestrian death and injury in driveways and other relatively protected areas.

Children, age 5 through 9, are at the greatest risk from pedestrian death and injury. Children, ages 14 and under, are more likely to suffer pedestrian injuries in residential areas with high traffic volume, a higher number of parked vehicles on the street, higher posted speed limits, few pedestrian-control devices and few alternative play areas.

Practical, skills-based pedestrian safety training efforts have demonstrated improvements in children's traffic behavior. Environmental modifications are effective at reducing pedestrian-motor vehicle-related incidents.

Bicycle-related Fatalities

Representative Cases:

- **Children should always wear helmets when riding bicycles.**

A 10-year-old girl was riding her bike on the gravel road in front of her home. She was not paying attention and rode her bike in front of an oncoming car. She was not wearing a helmet at the time and died of massive head injuries.

Motor vehicle fatalities among Missouri children also include **2** bicyclists who died in 2001, when they were either struck by a motor vehicle or fell. Both suffered fatal injuries. Only **1** was reported to be wearing a helmet.

The single most effective safety device available to reduce head injury and death from bicycle crashes is a helmet. In the event of a crash, wearing a bicycle helmet reduces the risk of serious head injury by as much as 85% and the risk for brain injury by as much as 88%. Unfortunately, national estimates on helmet usage suggest that only 25% of children, ages 5-14, wear a helmet when riding. Helmet usage is lowest among children ages 11 to 14. (Safe Kids) The primary strategies to increase bike helmet use include education, legislation and helmet-distribution programs. (*National Center for Injury Prevention and Control*)

Prevention Recommendations:

For parents:

- Children, 12 years old and younger, should always ride appropriately restrained in the back seat of all passenger vehicles, particularly vehicles with airbags.
- Never allow children under age 12 to cross streets alone.
- Always model and teach proper pedestrian behavior.

For community leaders and policy makers:

- Community leaders should encourage enforcement of existing child restraint laws.
- Missouri lawmakers should strengthen child restraint laws by mandating the following:
 - Include children age 4 through 15 in the child restraint law, thereby making restraint use in the age group subject to primary enforcement.
 - Raise the penalty for violation of child restraint laws to at least \$100 and one driver's license point.
 - Remove the provision of the vehicle equipment regulations that states that if there are not enough safety belts for all passengers, they are not in violation for failure to use.

For professionals:

- Facilitate and implement programs that educate parents on appropriate restraint of children in motor vehicles, and provide child safety seats to those who do not have them, such as safety seat check-up events.
- Facilitate and implement programs that educate parents and children on helmet use, instructions on fitting helmets properly and events that provide helmets at little or no cost.

For Child Fatality Review Panels:

- Ensure that speed limits, and laws prohibiting driving while intoxicated, along with other traffic safety laws, are strictly enforced.

Resources and Links:

National Safe Kids Campaign www.safekids.org
National Center for Injury Prevention and Control www.cdc.gov/ncipc
Harborview Injury Prevention and Research Center <http://depts.washington.edu>
National Highway Transportation Safety Administration www.nhtsa.dot.gov
Stop the Knock www.mshp.state.mo.us (contact the appropriate headquarters)
Think First www.thinkfirst.org
Kids 'N Cars www.kidsncars.org

Fatalities Among Children Left Unattended In and Around Motor Vehicles*

Attention concerning child safety and motor vehicles has focused largely on protecting children as they ride in and on vehicles of all kinds, primarily motor vehicles on public roads. The Missouri CFRP reviews and collects data on motor vehicle fatalities among children as passengers and drivers, pedestrians and bicyclists. However, children who are unsupervised in or around motor vehicles that are not in traffic are at increased risk for injury and death.

The Centers for Disease Control (CDC) examined injuries and fatalities among children involved in nontraffic motor vehicle-related incidents from July 2000-June 2001. Nationally, an estimated 9,160 nonfatal injuries and 78 fatal injuries were documented for that period of time. Of the fatally injured children, most (82%) were age <4 years, were male and were near a home. The most common type of fatal incident was exposure to excessive heat inside a motor vehicle, followed by being backed over and being hurt when a child put a motor vehicle in motion.

Age of Children Left Unattended In and Around Motor Vehicles	
3 years	2
2 years	2
1 years	2
<1 year	1

A child left unattended in a vehicle is in danger of dehydration, injury, abduction and even death. In 2001, 7 Missouri children died because they were unsupervised in and around automobiles. All seven children were less than 4 years of age and all seven died of excessive heat exposure.

The CDC study recommended several areas for possible prevention, including education campaigns aimed at parents and caregivers that communicate the following: (1) Ensure adequate supervision when children are playing in areas near parked motor vehicles. (2) Never leave children alone in a motor vehicle, even when they are asleep or restrained. (3) Keep motor vehicles locked in a garage or driveway and keep keys out of children's reach.

Something We Can Do: “Not Even for a Minute” Campaign

Children's Trust Fund points out a child left alone in an automobile is a car accident that can be prevented. For additional information or to order education materials contact CTF at 573-751-5147 or visit the web site at www.ctf4kids.org.

Resources and Links:

CDC. Injuries and Deaths Among Children Left Unattended in or Around Motor Vehicles-United States, July 2000-June 2001. MMWR 2002;51:No.26.

Kids 'n Cars.....www.kidsncars.com

*This data is not included in other motor vehicle fatality data.



**Not even
for a minute!**

**Never leave a child
alone in a car.**

Left alone in a vehicle, even for a short time, a child is in danger of:
dehydration • injury • abduction.

For more information call the
Children's Trust Fund at 573-751-5147
or visit our Web site at www.ctf4kids.org.

 **Children's
Trust Fund**
Missouri's Foundation for Child Abuse Prevention

Unintentional Suffocation/Strangulation

Unintentional Suffocation/Strangulation was the cause of 35 deaths of Missouri children in 2001, representing 16% of unintentional injury deaths.

Representative Cases:

- **The safest place for infants to sleep is in a standard crib, on their backs with no soft bedding.**

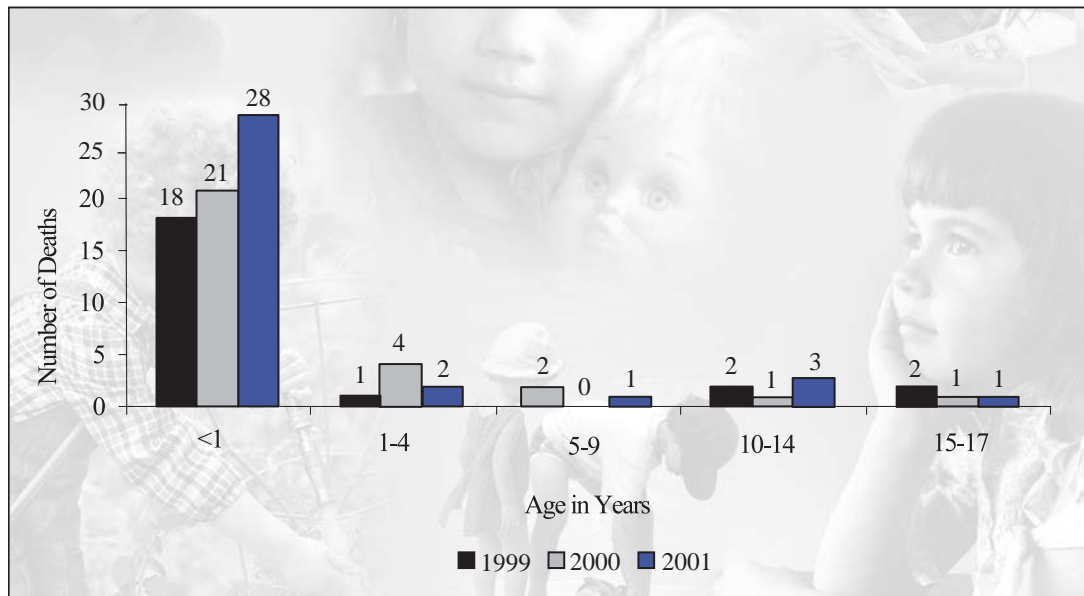
A 3-month-old male was sleeping on the couch with his father. The father woke up to find the victim wedged between his arm and the couch. This child died of accidental suffocation as a result of wedging.

After being congested for several days, a 6-month-old infant girl was put to sleep on her mother's chest. The mother awoke the next morning to find the baby lying face down on the bed. The baby died of accidental suffocation due to overlay.

A 6-week-old was sleeping with her mother and two older siblings. The infant was apparently pinned between the mother and a pillow used to keep the baby from rolling off the bed, resulting in unintentional suffocation.

The suffocation/strangulation deaths as reported in this section are unintentional. Suffocation/strangulation deaths may also be intentional, inflicted by others (homicide) or self-inflicted (suicide).

Obstruction of the airway (suffocation, strangulation and choking) is a leading cause of injury death in infants under the age of 1 year in Missouri and in the United States. These injuries occur when children are unable to breathe normally because food or objects block their internal airways (choking); materials block or cover their external airways (suffocation); or items become wrapped around their neck or exert pressure on their neck and interfere with breathing (strangulation). Children, especially those under age 3, are particularly vulnerable to airway obstruction death and injury due to the small size of their upper airways, their relative inexperience with chewing, and their natural tendency to put objects in their mouths. Additionally, infants' inability to lift their heads or extricate themselves from tight places puts them at greater risk. (National Safe Kids Campaign).

Figure 17. Unintentional Strangulation/Suffocation Deaths by Age**Figure 18. Unintentional Strangulation/Suffocation Deaths by Sex and Race**

Sex	1999	2000	2001	Race	1999	2000	2001
Female	9	12	18	White	19	22	26
Male	16	15	17	Black	6	5	9
	25	27	35		25	27	35

Of the **35** Missouri children who died in 2001 as a result of unintentional suffocation/strangulation, **28** (80%) were infants under the age of one year.

Sudden Unexpected Infant Deaths: Suffocation and Undetermined

Most infant deaths due to **suffocation** are directly related to an unsafe sleep environment. Many parents and caregivers do not understand the risks associated with unsafe sleeping arrangements. Infants can suffocate when their faces become positioned against or buried in a mattress, cushion, pillow, comforter or bumper pad or when their faces, noses and mouths are covered by soft bedding, such as pillows, quilts, comforters and sheepskins. In most cases of unintentional suffocation, the sleeping environment is such that most normal infants would not have been able to move themselves out of the unsafe circumstances.

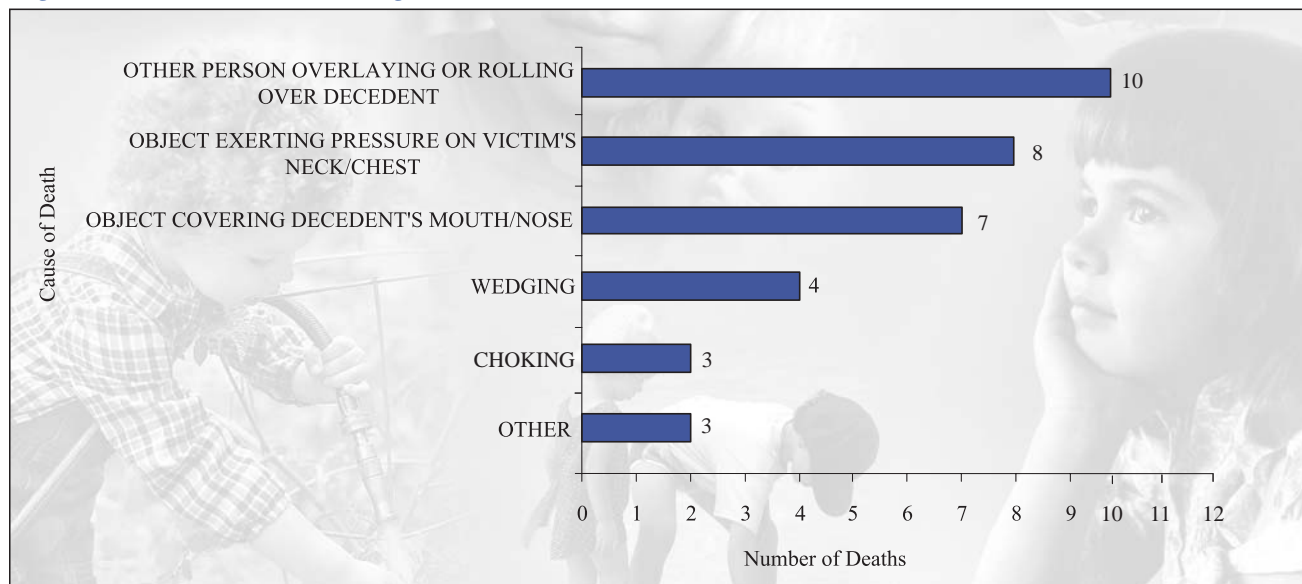
An **overlay** is a type of unintentional suffocation that occurs when an infant is sleeping with one or more persons (bed sharing with adults or older children) and someone rolls over on them. A suffocation due to overlay can be verified by one of the following means: (1) the admission of someone who was sharing the bed that they were overlying the infant when they awoke or (2) the observations of another person. Most infant deaths involving possible or suspected overlay are classified as **undetermined** cause because the actual positions of the infant and other person at the time of the death were not witnessed.

In some cases, even the most thorough and careful scene investigation and autopsy do not produce a definitive cause of death, because risk factors are present that are significant enough to have possibly contributed to the death. One such risk factor is an unsafe or challenged sleep environment. Recent studies of epidemiological factors associated with sudden unexpected infant deaths demonstrate that prone sleeping and the presence of soft bedding near the infant's head and face pose very strong environmental challenges by limiting dispersal of heat or exhaled air in the vast majority of cases. However, the extent to which such environmental challenges play a role in a particular sudden infant death often cannot be determined. Sudden unexpected infant deaths involving an unsafe sleep environment are classified as **undetermined** when unintentional suffocation is not conclusively demonstrated by the scene investigation.

Suffocation in Young Children

Young children can suffocate when they become entrapped in old refrigerators, chest freezers or similar confined spaces, or their faces become covered by plastic bags. Of the **35** Missouri children who died of unintentional suffocation/strangulation in 2001, **3** were young children, ages 1, 3, and 7, who were trapped inside a cedar chest. The cedar chest was self-latching and could not be opened from the inside. It was alleged that the children had been left alone all day while the parents were working and had apparently climbed into the cedar chest while playing.

Figure 19. Cause of Unintentional Strangulation/Suffocation Deaths



Prevention Recommendations:

For parents:

- Follow “Safe Bedding Practices for Infants” recommended by the American Academy of Pediatrics:
 - Place baby on his/her back on a firm, tight-fitting mattress in a crib that meets current safety standards.
 - Remove pillows, quilts, comforters, sheepskins, stuffed toys and other soft products from the crib.
 - Consider using a sleeper or other sleep clothing as an alternative to blankets, with no other covering.
 - If using a blanket, put baby at the foot of the crib. Tuck a thin blanket around the crib mattress, covering only as far as the baby’s chest.
 - Make sure your baby’s head remains uncovered during sleep.
 - Do not place baby on a waterbed, sofa, soft mattress, pillow, or other soft surface to sleep.
- Remove drawstrings from children’s clothing.
- Tie up or remove all cords for window coverings.

For community leaders and policy makers:

- Support legislation that requires improved product design, or removal of hazardous products from the market.

For professionals:

- Information about unintentional suffocation/strangulation hazards to young children, including unsafe sleep practices should be widely disseminated.
- Teach parents CPR and the Heimlich Maneuver for infants and young children.

For Child Fatality Review Panels:

- Report any child death that appears to involve a product hazard to the Consumer Product Safety Commission. The CPSC can also be accessed for product safety research assistance; contact STAT for assistance.

Resources and Links:

Consumer Product Safety Commissionwww.cpsc.gov
 National Safe Kids Campaignwww.safekids.org
 American Academy of Pediatricswww.aap.org
 Missouri Children’s Trust Fund, “Safe Crib-Safe Sleep” Campaign .www.ctf4kids.org
 Sudden Unexpected Infant Death: A Guide for
 Missouri Coroners and Medical Examinerswww.dss.state.mo/stat/index.htm

Fire/Burn Fatalities

Fire/Burn injuries were the cause of 13 Missouri child deaths in 2001, representing 6% of unintentional injury deaths.

Representative Cases:

- **Lighters, matches and other sources of fire should be kept locked away from children.**

Three siblings, ages 14 months, 2 and 5 years, were playing with a lighter and started a fire in their home. When attempts to put out the fire failed, the mother and all three children were trapped by the flames and overcome by smoke

- **Properly installed and maintained smoke detectors are effective in preventing fatalities.**

A 4-year-old girl and her male caretaker were taking a nap when fire started in the bedroom. The smoke detectors in the house were not in working order. Both died of smoke inhalation before fire fighters arrived.

- **Plan and practice several fire escape routes from each room of the home and identify an outside meeting place. Practicing an escape plan may help children who become frightened, and confused in a fire to escape to safety.**

An electric skillet started a fire in a home, blocking the main entrance. The family did not have an escape plan. A 6-year-old girl died in the fire when she became frightened, not realizing the back door was free to exit. She was found later hiding under her bed.

Each year in the United States more than 600 children ages 14 and under die, and nearly 47,000 are injured in fires. In Missouri **13** children died as a result of fire/burn injury in 2001; **6** of those children were under the age of 5. Fire and burn injuries are the third leading cause of unintentional injury deaths among Missouri children.

Children, especially those age 5 and under, are at the greatest risk from home fire-related death and injury and are more than twice as likely to die in a fire than the rest of the population. Young children have a limited ability to react promptly and properly to a fire; they are unable to act, or act irrationally. They may attempt to hide or run from adults attempting to rescue them. More than half the children under the age of 5 who die in home fires are asleep at the time of the fire. (*Safe Kids*)

Figure 20. Fire/Burn Deaths by Age

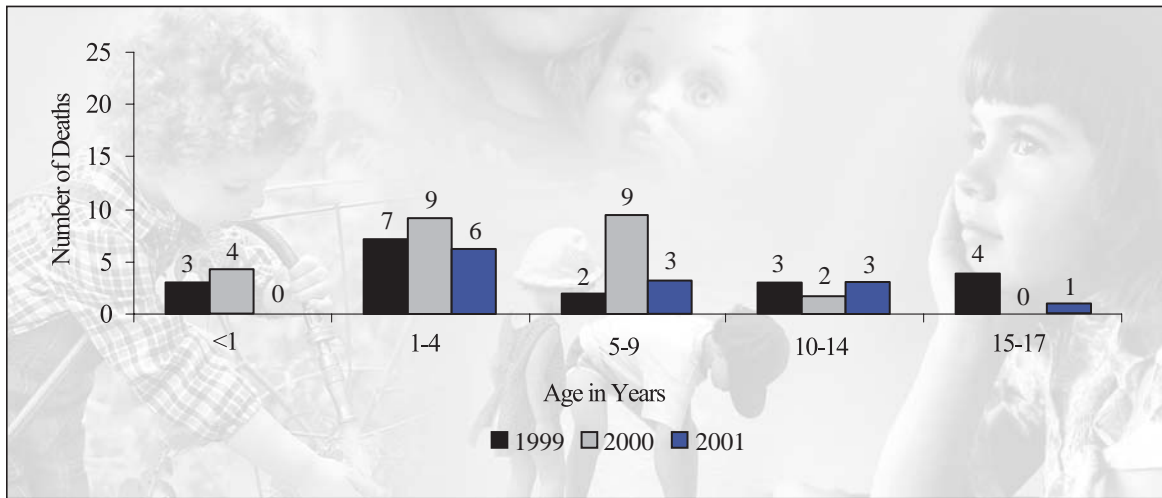
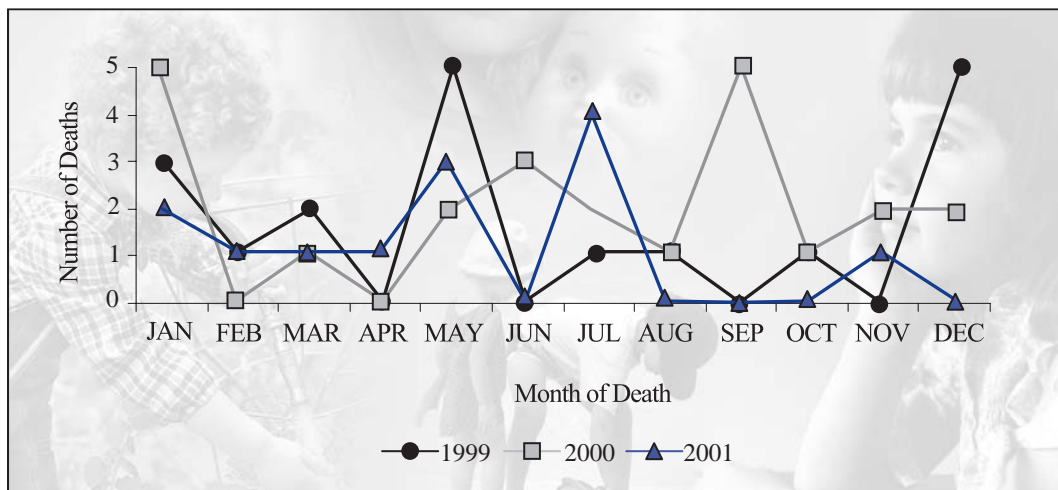


Figure 21. Fire/Burn Deaths by Sex and Race

Sex	1999	2000	2001	Race	1999	2000	2001
Female	6	12	3	White	10	16	11
Male	13	12	10	Black	9	8	2
	19	24	13		19	24	13

Residential fires and related fatalities tend to occur more often during cold-weather months, when the use of heating systems is at a peak.

Figure 22. Fire/Burn Fatalities by Month of Death



- In the United States, a working smoke alarm is not present in two-thirds of the residential fires in which a child is injured or killed. Smoke detectors were reported to be present in only **5** of the fatal Missouri fires reviewed by county CFRP panels in 2001. Approximately 90% of homes in the U.S. have a smoke alarm; however, these alarms are not always properly maintained.
- Children living in rural areas have a dramatically higher risk of dying in a residential fire. (*United States Fire Administration*)
- Nationally, over 30% of the fires that kill young children are started by children playing with matches or lighters. These fires tend to begin in the bedroom or living room, where children are often left alone to play. (*National Center for Injury Prevention and Control*)
- Children from low-income families are at greater risk for fire-related death and injury, due to factors such as lack of working smoke alarms, substandard housing, use of alternative heating sources and economic constraints on providing adequate adult supervision. (*Safe Kids*)

Fire/Burn Fatalities as Reported on CFRP Data Forms

Smoke alarm present		Fire started by	
Yes	5	Decedent	3
No	0	Other	3
Unknown	7	No one	1
Not applicable	0	Unknown	6
Not Answered	1		

Activity of person starting fire		Multiple fire injuries or deaths	
Playing	7	Yes	9
Cooking	1	No	4
Other	1		
Unknown	2		
Not applicable	2		

For structure fire, where was decedent found		Did decedent know of a fire escape plan	
Hiding	1	Yes	0
In bed	6	No	2
Close to exit	3	Unknown	11
Other	3		

Source of fire		Smoke alarm in working order	
Matches	1	Yes	5
Lighter	6	No	0
Other	3	Unknown	7
Unknown	3	Not Answered	1

Something We Can Do: Fire Prevention Awareness Day

Young children, especially those age 5 and under, are at greatest risk from home fire-related death and injury and are more than twice as likely to die in a fire than the rest of the population. Children from low-income families are at greater risk for fire-related death and injury, due to factors such as a lack of working smoke alarms, substandard housing and use of alternative heating sources. Smoke detectors, properly installed and maintained, have proven extremely effective in preventing fatalities.

When three children died in a house fire in St. Louis, CFRP panel members and other community leaders talked about finding a way to target that neighborhood for a fire safety campaign that would provide an appropriate prevention response to those tragic deaths. For the last eight years, volunteers in the region have continued to bring “Fire Prevention Awareness Day” to high-risk neighborhoods throughout the region. Working from a staging area where families can gather for food, fun and prevention education, firefighters and volunteers go door to door, installing smoke detectors or fresh batteries and providing fire safety information. Media attention for these events helps to spread the prevention message.

For information or a printed guide on “Neighborhood Fire Prevention Awareness Day” call STAT at 800-487-1626.

Prevention Recommendations:

For parents:

- Young children require vigilant supervision.
- Keep matches, gasoline, lighters and all other flammable materials locked away and out of children’s reach.
- Install smoke alarms on every level and in every sleeping area. Test them once a month. Replace batteries at least once a year.
- Plan and practice several fire escape routes from each room of the home and identify an outside meeting place. Practicing an escape plan may help children who become frightened and confused in a fire to escape to safety.

For community leaders and policy makers:

- Enact laws that require smoke detectors in new and existing housing, and make landlords responsible for ensuring that rental properties have working smoke detectors.
- Enforce building codes and conduct inspections.

For professionals:

- Smoke detector giveaway programs have proven useful when high risk areas are targeted. Implement such a program in your community.
- Implement a multi-faceted community campaign to prevent burn injuries. Target a well-defined population with a very specific message.

For Child Fatality Review Panels:

- When reviewing a child death that is the result of a residential fire, determine if the local building code requires smoke detectors in residences, and if a working smoke detector was present in the home. Use that information to develop an action plan, such as working to change the code or pursuing prosecution of a negligent landlord. Special attention should be paid to the issue of adult supervision when investigating deaths of young children in house fires.

Resources and Links:

United States Fire Administration www.usfa.fema.gov

National Safe Kids Campaign www.safekids.org

Harborview Injury Prevention and Research Center depts.washington.edu/hiprc

Drownings

**22 Missouri children drowned in 2001,
representing 10% of unintentional injury deaths.**

Representative Cases:

- **Toddlers and young children require vigilant adult supervision when outdoors near bodies of water, such as pools, creeks and streams.**

While her mother was talking to a neighbor in the yard, a 15-month-old infant drowned in the family pool. The gate to the pool had been left ajar.

A 2-year-old girl was left unattended outside for approximately ten minutes. She was found floating in the fishpond in the front yard.

- **Infants and young children require constant supervision while in a bathtub.**

A 2-year-old infant was left in the bathtub alone while her mother answered the phone. When the mother returned, she found the child submerged and unresponsive.

A 9-month-old infant was left in the bathtub with his three-year-old brother while their mother went to finish a load of laundry in the basement and load the dishwasher. Returning to the bathroom, she found the baby face down in the water.

- **Personal flotation devices should be worn in and around open water.**

While fishing in a local river, an 11-year-old boy attempted to swim to the other side. Before reaching the other side, he became tired and went under. His friends made several attempts to rescue him, but he drowned. He was not wearing a life jacket.

In the United States, drowning is the second leading cause of unintentional injury-related deaths among children, taking more than 1,000 young lives each year. In Missouri, drowning ranked fourth as a leading cause of injury death. Young children, age 4 and under have the highest drowning death rate. Of the 22 Missouri children who drowned in 2001, 9 (41%) were age four and under; 2 of those were infants under the age of 1 year.

Figure 23. Drowning Deaths by Age

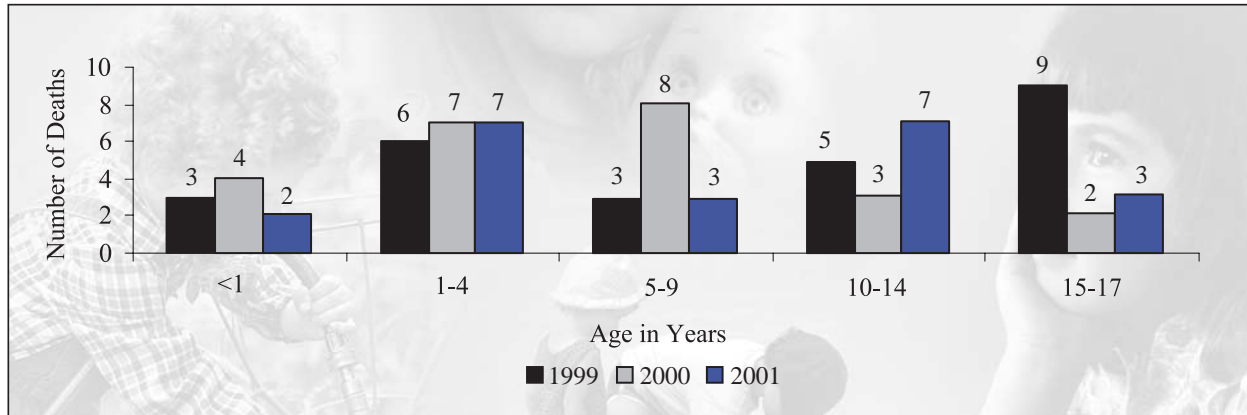


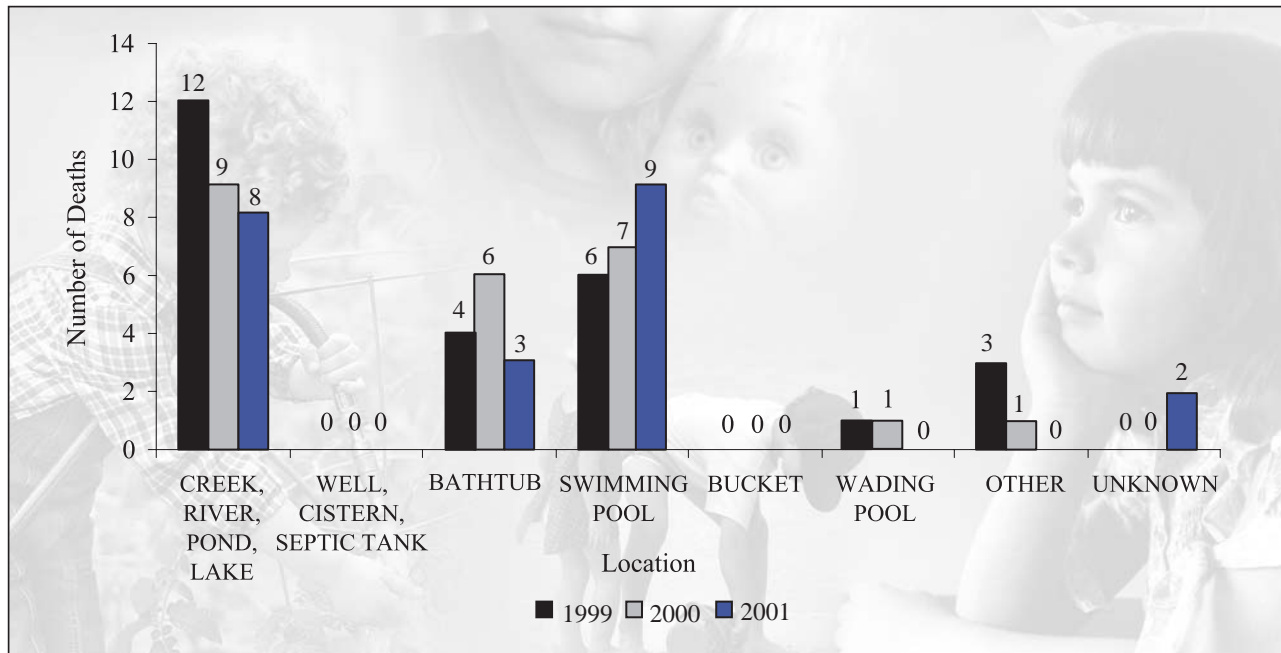
Figure 24. Drowning Deaths by Sex and Race

Sex	1999	2000	2001	Race	1999	2000	2001
Female	8	5	11	White	17	17	14
Male	18	19	11	Black	8	7	5
				Other	1	0	3
	26	24	22		26	24	22

Drownings among infants under the age of one, typically occur in residential bathtubs. Most drownings among children 1 through 4 years old occur in residential swimming pools. However, children can drown in as little as one inch of water and, therefore, are at risk of drowning in wading pools, buckets, toilets and hot tubs. Childhood drownings can happen in a matter of seconds and typically occur when a child is left unattended, or during a brief lapse in supervision. In the United States, young children (under age 4) have the highest drowning death rate.

Older children are more likely to drown in open water sites such as creeks, lakes and rivers. Of the 22 Missouri children who drowned in 2001, 7 (32%) occurred in swimming pools, 8 (36%) occurred in open water sites.

Figure 25. Location of Drownings



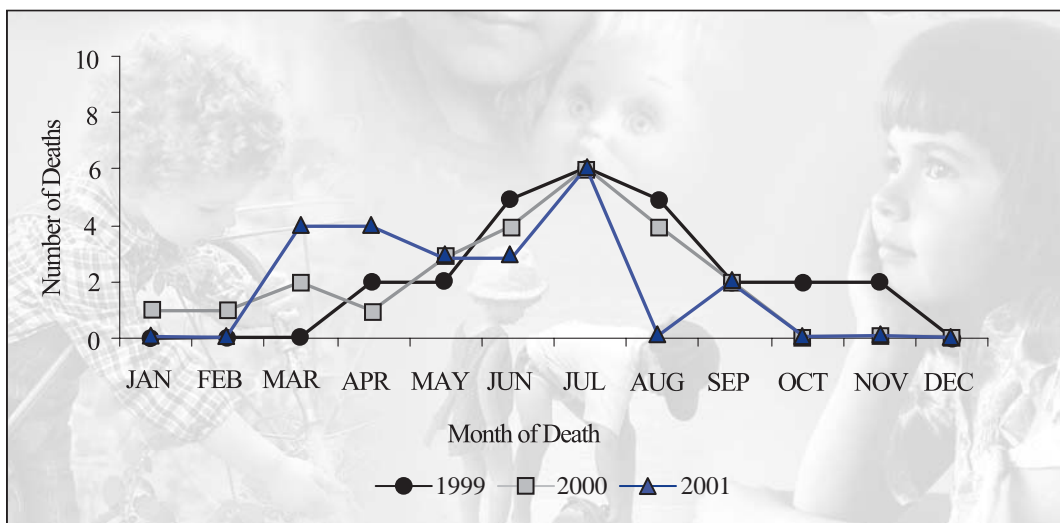
Contrary to what many people believe, drowning usually occurs quickly and silently. The scenario that a drowning person will make lots of noise while thrashing around in the water and resurface several times before actually drowning is pervasive, but entirely false.

Supervision of children in and around water is critical. Of the **15** drowning fatalities in 2001 in which supervision of the child victim was a consideration, panels found that **2** (13%) had been left unattended by their caretaker.

Use of a personal flotation device is well established as an effective means to prevent drowning deaths. Only **1** of the Missouri children who drowned in 2001 was wearing a personal flotation device.

The warm-weather months of June, July, August and September are peak months for drowning, coinciding with increased activity in swimming pools and open water sites.

Figure 26. Drowning Deaths by Month of Death



Prevention Recommendations:

For parents:

- Never leave a child unsupervised in or around water in the home or outdoors, even for a moment.
- For families with residential swimming pools: Install four-sided pool fencing with self-closing and self-latching gates. The fence should be at least four feet tall and completely separate the pool from the house and play area of the yard.
- Ensure that children always wear U.S. Coast Guard-approved personal flotation devices near open water or when participating in water sports.
- Learn CPR.

For community leaders and policy makers:

- Enact and enforce pool fencing ordinances.
- Enforce existing regulations regarding the use of personal flotation devices when boating.

For professionals:

- Parents, as well as children, should receive water safety education. This should include discussion of water hazards to children (including buckets) and the importance of vigilant supervision.
- Facilitate CPR training for parents of small children.

For Child Fatality Review Panels:

- Promote public education about drowning hazards to children and strategies to prevent drowning.

Resources and Links:

National Safe Kids Campaign www.safekids.org
 National Center for Injury Prevention www.cdc.gov/ncipc
 Harborview Injury Prevention and Research Center <http://depts.washington.edu/hiprc>
 Consumer Product Safety Commission www.cpsc.org
 Red Cross www.redcross.org
 The United States Lifesaving Association (USLA) www.usla.org

Unintentional Firearm Fatalities

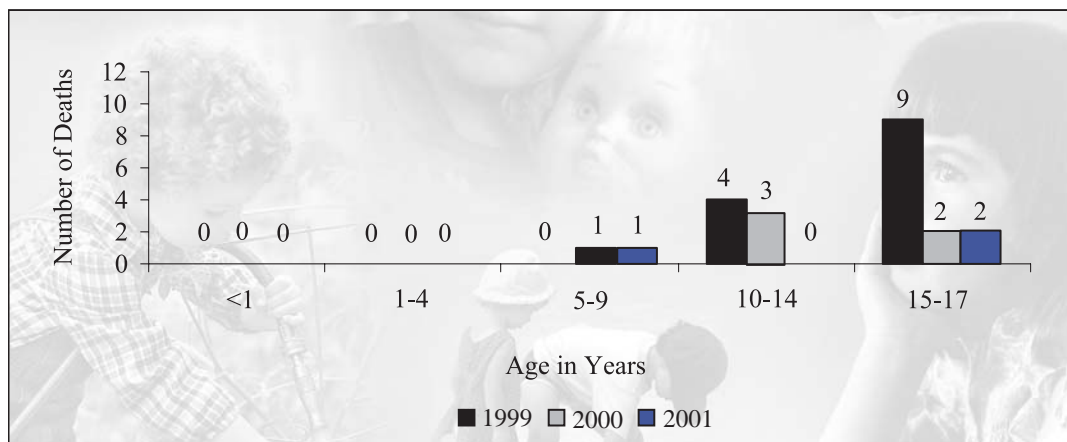
Unintentional firearm injuries were the cause of 3 deaths of Missouri children in 2001, representing 1% of unintentional injuries.

Representative Cases:

- Education should be offered in all communities about gun safety. Parents should monitor children who are handling firearms.

An 8-year-old male and his 12-year-old brother were playing with a rifle in their home. They were unsupervised. The gun went off, striking the 8-year-old in the abdomen.

Figure 27. Unintentional Firearm Fatalities by Age



Boys are far more likely to be victims of unintentional firearm deaths than girls. In the United States, nearly 80% of the children killed in unintentional shootings are male. Of the 3 unintentional firearm deaths among Missouri children in 2001, all 3 were male.

Nationally, more than 70% of unintentional firearm shootings involve handguns. Two of the 3 unintentional firearm deaths among Missouri children in 2001 involved a handgun.

Key factors in unintentional firearm deaths include:

- Most unintentional childhood shooting deaths involve guns kept in the home that have been left loaded and accessible to children, and occur when children play with loaded guns.
- Unintentional shootings among children most often occur when children are unsupervised and out of school. These shootings tend to occur in the late afternoon, during the weekend, and during summer months and the holiday season.

- Nearly two-thirds of parents with school-age children, who keep a gun in the home, believe that the firearm is safe from their children. However, one study found that when a gun was in the home, 75-80% of first and second graders knew where the gun was kept.
- Generally, before age 8, few children can reliably distinguish between real and toy guns, or fully understand the consequences of their actions.
- Children as young as age 3, are strong enough to pull the trigger of many of the handguns available in the U.S.

Prevention Recommendations:

For parents:

- Parents who own guns should always store firearms unloaded and locked up, with ammunition locked in a separate location, out of children's reach, use gun locks, load indicators and other safety devices on all firearms.
- All parents should teach children never to touch a gun and tell an adult if they find a gun.

For community leaders and policy makers:

- Enforce laws and ordinances that restrict access to and decrease availability of guns.
- Enact and enforce laws requiring new handguns be designed to minimize the likelihood of discharge by children.
- Enact laws outlining owner liability for harm to others, caused by firearms.

For professionals:

- Implement gun safety education. It is important to include public education about the hazards of firearms, as one component of an overall effort to reduce the incidence of firearm injuries and deaths.

For Child Fatality Review Panels:

- In all cases of firearm fatalities involving children, ensure that every effort is made to determine the source of the gun and consider the responsibility of the gun owner in the incident.

Resources and Links:

National Safe Kids Campaign www.safekids.org

Harborview Injury Prevention and Research Center <http://depts.washington.edu/hiprc>

Inadequate Care

Note that child deaths discussed under “Inadequate Care” are not included with Child Abuse and Neglect Fatality data reported in the section that follows. In the case of most child fatalities, negligent treatment is not the direct cause of death, but may be identified as a contributory factor by the local CFRP panel reviewing the death. Examples included delayed or inadequate medical care, malnutrition, unsanitary living conditions and lack of supervision, designated as “Inadequate Care.”

The majority of unintentional fatalities and serious injuries among young children are the result of a temporary lack of supervision or inattention at a critical moment. This is often the case when infants and toddlers drown in bathtubs and swimming pools or young children dart in front of moving vehicles. Parents and caretakers often underestimate the degree of supervision required by young children. This is complicated by the mistaken idea that young children have some sort of innate fear of dangerous situations.

CFRP panels reported **49** child fatalities in 2001 in which inadequate care contributed to the death of a child.

Inadequate care or neglect			
Apparent lack of supervision	20	Delayed medical care	4
Apparent lack of medical care	5	Inadequate medical attention	5
Failure to thrive (non-organic)	2	Out-of-hospital birth	1
Malnutrition	1	Oral Water Intoxication	1
Dehydration	6	Other	3

In addition, young children riding as unrestrained passengers, killed in motor vehicle crashes, should be included in this category. In Missouri in 2001, CFRP panels reported **37** child passenger fatalities in which the victim was known to be riding unrestrained; of those, **5** were age 4 and under, **3** were age 5-9 years and **4** were age 10-14 years.

SECTION FOUR:

Intentional Injury Deaths

Intentional injury includes child deaths designated by death certificate as homicide and suicide, along with other child deaths identified by the Child Fatality Review Program as *Fatal Child Abuse and Neglect deaths. In considering Intentional Injury, note that the term “intentional” does not necessarily describe the mindset of the victim or perpetrator, but indicates only that the circumstances involved harmful, volitional acts.

Manner of Death

Homicide occurs when death results from a volitional act committed by another person to cause fear, harm, or death. Intent to kill is a common element, but is not required for classification as homicide. *Suicide* results from an injury or poisoning as a result of an intentional, self-inflicted act committed to do self-harm or cause the death of one’s self.

Homicides

Homicide was listed as the death certificate manner of death for 73 Missouri children in 2001.

For the purpose of analysis of child deaths and their prevention, homicides are divided into three categories, based on the relationship of the perpetrator to the victim:

- (1) ***Fatal Child Abuse and Neglect: Child death resulting directly from inflicted physical injury and/or grossly negligent treatment by a parent or caretaker, regardless of motive or intent.** This includes, but is not longer limited to, children whose deaths were reported as *homicide* by death certificate. In 2001, 54 Missouri children were victims of Fatal Child Abuse and Neglect; of those, 38 were reported by death certificate as homicide.
- (2) **Death of a child in which the perpetrator was not in charge of the child.** This most often includes youth homicides, such as gang-related or drug-related shootings and child abductions that culminate in murder. There were 32 such fatalities among Missouri children in 2001:

- (3) **Deaths of children in which the perpetrator, not in charge of the child, was engaged in criminal or negligent behavior and the child was not an intended victim.** Examples most often include motor vehicle-related deaths involving drugs, alcohol and other criminal behavior. In 2001, there were three homicide deaths of this type among Missouri children.

Figure 30. Homicides by Age

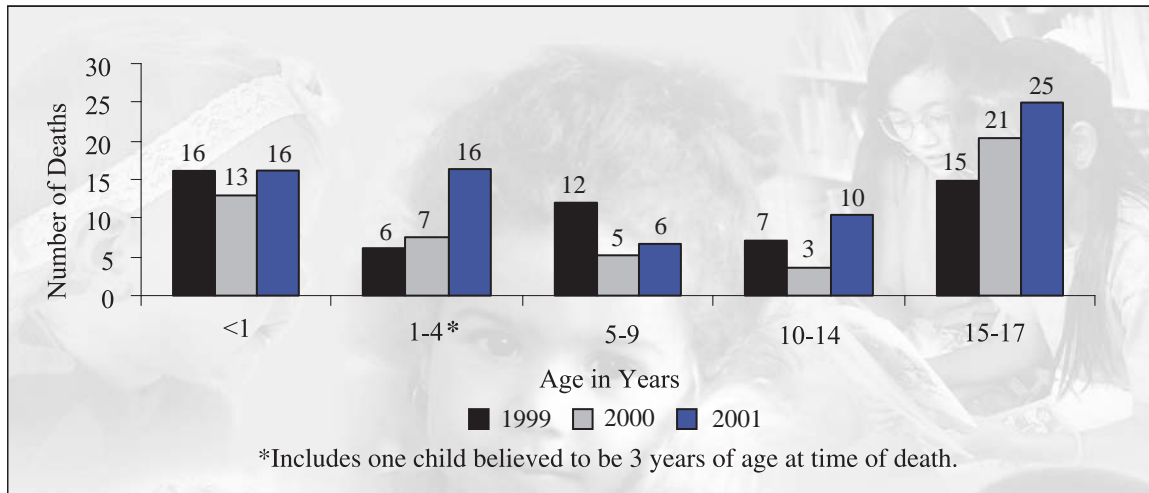
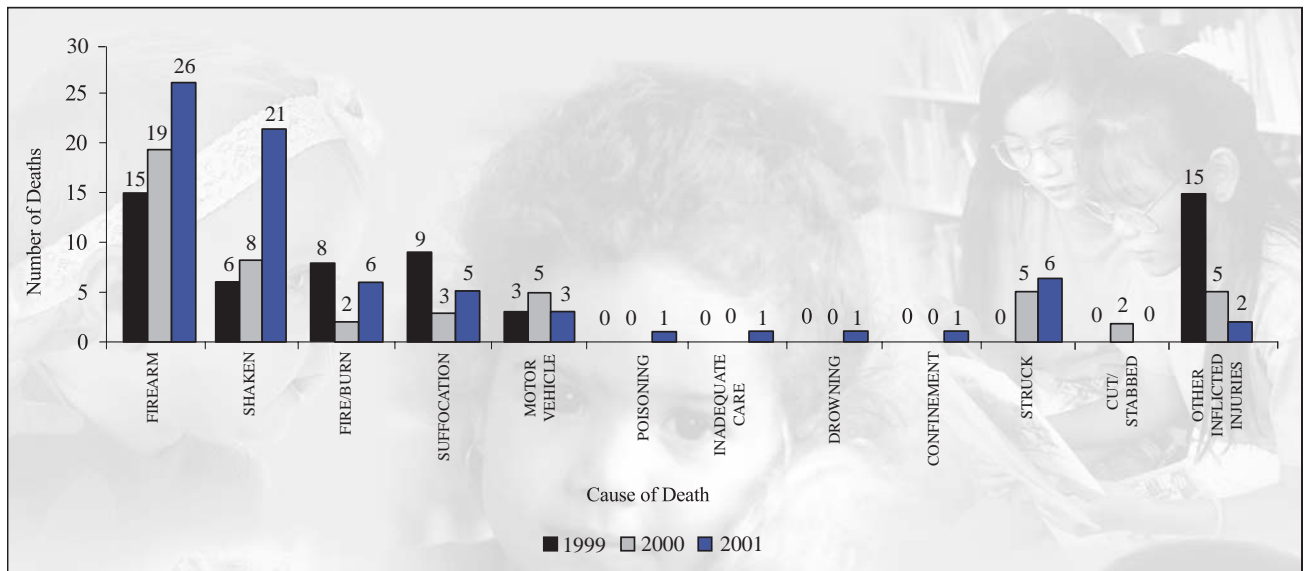


Figure 31. Homicides by Sex and Race

Sex	1999	2000	2001	Race	1999	2000	2001
Female	24	19	27	White	18	22	29
Male	32	30	46	Black	27	26	44
				Other	1	1	0
	56	49	73		56	49	73

Figure 32. Homicides by Cause



Intentional Firearm Fatalities

Of the 73 child homicides in Missouri in 2001, intentional firearm injuries resulted in the deaths of 26 children, representing 36% of all homicide deaths.

Representative Cases:

- The increased availability of guns and drugs contributes to violence.

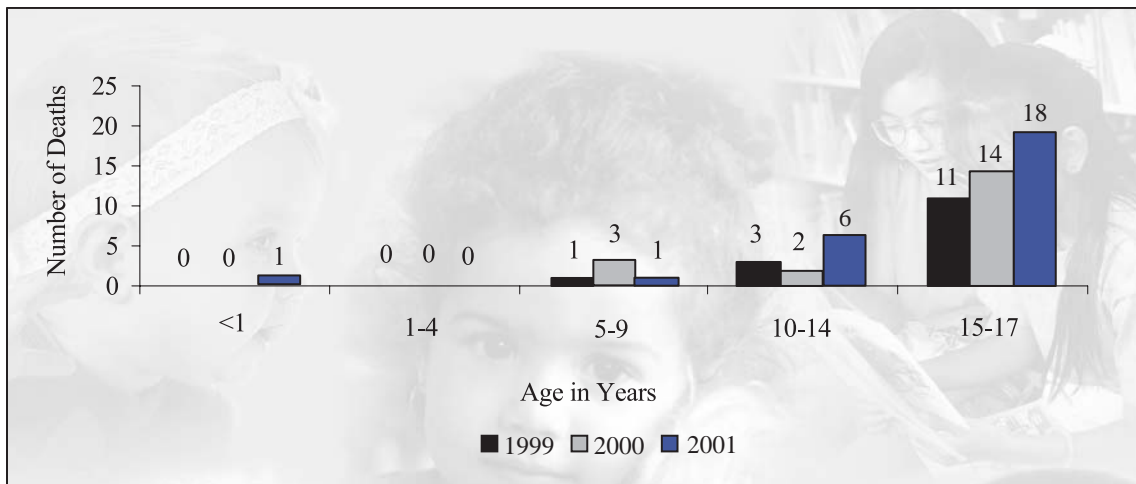
A 16-year-old boy was found dead in a courtyard behind his apartment building. He was the victim of a gang shooting.

A 17-year-old male was the victim of a road-rage shooting. The driver of the car pulled along side the victim and opened fire. The victim died of gunshot wounds to the head and chest.

- Even trivial disputes can end in death when guns are involved.

A 15-year-old female was fatally shot in the head outside a convenience store. She had started an argument with another girl inside the store and had been shot while attempting to leave.

Figure 33. Homicide Firearm Deaths by Age



Black males continue to be at disproportionate risk.

Figure 34. Homicide Firearm Deaths by Sex and Race

Sex	1999	2000	2001	Race	1999	2000	2001
Female	3	4	4	White	2	5	5
Male	12	15	22	Black	13	13	21
				Other	0	1	0
	15	19	26		15	19	26

Youth homicide:

In 2001, **thirty-two** Missouri children were killed by non-caretakers; the vast majority of victims were adolescents. Most youth homicides involved juvenile crime and violence or abductions by adults or adolescents that culminated in murder.

Homicides, Drug or Gang Related		Homicides, Other	
Intentional firearm	22	Abductions culminating in murder by asphyxia	2
Arson	4	Child abductions by adult perpetrator, culminating in murder	2
Other inflicted trauma	1	Child murdered by adult in the home not in charge of the child	1

The most common mechanism of juvenile homicide is firearms, particularly inexpensive, readily available handguns. **Twenty-two** Missouri youth died of intentional firearm injuries in 2001; two of those were shot while committing robberies. Youth homicides are a serious problem in large urban areas, especially among black males. The majority of gun homicides occurred in the metropolitan areas of St. Louis and Kansas City. The number of firearm homicides among Missouri adolescents has risen sharply in the last three years, particularly when drug and gang activity is a factor. Other factors known to contribute to youth homicide include poverty, easy access to firearms, family disruption and school failure.

Nationally, the rate of juvenile arrests for violent crime has risen sharply since the mid-1980's. Over the next 10 years (1985-1994), juvenile arrests for murder, robbery, motor vehicle theft and weapons violations far surpassed the growth in adult arrests for these crimes. The growth in juvenile homicides has been particularly disturbing. The rapid rise of gun homicides of youth coincided with the growth of crack cocaine markets in the inner city. The increased availability of guns to youth has been matched by an increased willingness to use violence to achieve one's goals. Violent confrontations are common in adolescence. If both parties are armed, the one who acts first usually gains a decided advantage. The realization that many youth on the street are carrying a weapon increases the potential for an immediate and exaggerated response to real or perceived threats. Young males commit the majority of juvenile crime and violence. With the exception of rape and domestic violence, males are also more likely to be victims of violence than females. By age 17, the risk of homicide among males is five times that of females.

“It is important to keep the problem of youth violence in perspective...The current portrait of youth presented by the media is not grounded in statistical reality. The vast majority of young people do not carry weapons, do not deal drugs, do not join gangs and do not victimize their friends or neighborhoods...Most young people, like most adults, want nothing more than to lead their lives in peace.”

-Harborview Injury Prevention and Research Center

“The causes of violence are many. The multi-faceted nature of violence almost invariably frustrates simplistic approaches to the problem. Youth violence can be prevented, but efforts must start at an early age and be sustained over time. Early childhood experiences, the nature of a child’s family, the influence of peers, the neighborhood and society are keys to solving the puzzle.” (*Harborview Injury Prevention and Research Center*)

Promising Approaches:

Individuals and organizations working to prevent firearm violence, choose and develop strategies that are specifically appropriate for them to use, depending on what aspect of the problem they would like to address. Interventions can be categorized into three basic types: educational, legal and technological/environmental.

- *Educational programs* are often carried out in the schools, community-based organizations and physicians’ offices. They emphasize prevention of weapon misuse, the risks involved with possession of a firearm, and the need for conflict resolution and anger management skills.
- *Legal measures* strive to limit access to firearms-the number and type of people eligible to own or possess firearms, as well as the types of firearms that can be manufactured, owned and carried.
- *Technological/environmental interventions*: Firearm design requirements are both a technological and a legal intervention. Environmental and technological measures are based on the premise that automatic protections are more effective than those requiring specific action by individuals.

Violence Prevention Recommendations:

For parents:

- Provide supervision, support and constructive activity for children and adolescents in your household.
- Access family therapy and parenting assistance, as necessary, for help with anger management skills, self-esteem and school problems.

For community leaders and policy makers:

- Support the implementation of violence prevention initiatives.
- Encourage programs that provide support, education and activities for youth.
- Support legislation that restricts access to guns by children and adolescents.

For professionals:

- Support and implement crisis interventions and conflict resolution programs within the schools.

For Child Fatality Review Panels:

- Ensure that support for victims and survivors of youth violence is available.
- Support proactive approaches to crime control, especially those programs that include efforts to confiscate illegally carried firearms.

Resources and Links:

National Center for Injury Prevention and Control www.cdc.gov/ncipc
 Harborview Injury Prevention and Research Center <http://depts.washington.edu/hiprc>
 US Department of Justice, *The Guide for Implementing the Comprehensive Strategy for Serious, Violent and Chronic Juvenile Offenders*, Office of Juvenile Justice and Delinquency Prevention
 <http://research.marshfieldclinic.org/children>
 The National Youth Violence Prevention Resource Center. www.safeyouth.org

Fatal Child Abuse and Neglect

Of the 73 child homicides in Missouri in 2001, 38 (52%) children died at the hands of a parent or caretaker. Three of these children (8%) died of conditions of neglect. The remaining 35 (92%) died of inflicted injuries.

“In the little world in which children have their existence, Whosoever brings them up, There is nothing so finely preserved and so finely felt as injustice.”

-Charles Dickens, from Great Expectations

Representative Cases:

- **Young children are more likely to die from abuse and neglect.**

A 4-month-old male died after being repeatedly struck and thrown by his mother's paramour. Autopsy revealed multiple skull, rib and extremity fractures as well as old healing injuries.

- **Multi-disciplinary teams should be developed, supported and trained on the local level to investigate serious offenses against children.**

A 13-month-old male died as a result of being squeezed repeatedly, resulting in clavicle and tibia fractures and a collapsed bowel. There was a history of child abuse and neglect in the household. The mother was arrested and charged with felony child abuse.

- **Parents and caretakers must be educated about the dangers of shaking and ways to cope with crying infants.**

A 3-month-old male died after being shaken and thrown against the wall by his child care provider. The infant had been crying for at least 30 minutes prior to the incident. The childcare provider was charged with felony child abuse, murder and 19 counts of child endangerment.

A 2-year-old male died after being shaken by his mother's paramour. The mother and numerous other family members were aware of the continued abuse by the boyfriend, but they had not reported any of their concerns.

“The loss to our society from child maltreatment is enormous. For those who survive, its victims are less likely to complete school and more likely to be unemployed or underemployed. They are more often arrested for juvenile and adult crimes. The annual economic cost of child maltreatment and its consequences in the United States is conservatively estimated at \$94 billion.” (*American Humane Association*)

“Murder is no less a crime because a child, rather than an adult, is the victim.”

-Unknown

Child fatalities are the most tragic consequence of child abuse and neglect. In the United States, approximately 1,200 children die of abuse or neglect each year, according to vital records (NCANDS). However, it is well documented that child abuse and neglect fatalities are underreported and that, nationally, at least 2000 children die each year at the hands of their parents or caretakers. Some estimates are as high as 3-5,000. (Ewigman et al., 1993; Herman-Giddens et al., 1999) There are a number of reasons for the discrepancies and some of the fundamental problems are highlighted in this section. The Centers for Disease Control has funded an effort to develop a standardized national surveillance system capable of accurately reporting child abuse and neglect fatalities. On a state level, properly organized and functioning child fatality review systems have improved the accuracy of child death reporting.

In Missouri, there are three entities within state government responsible for child fatality information: **Department of Health & Senior Services Bureau of Vital Statistics, Department of Social Services, Division of Family Services** and the **Child Fatality Review Program**. All three exchange and match child fatality data in order to ensure accuracy throughout the system. However, the Bureau of Vital Statistics, Division of Family Services and the Child Fatality Review Program serve very different functions and, therefore, different classifications and timing periods apply when child fatality data is reported.

Vital Statistics and Death Certificate Information

The death certificate is used for two major purposes. One is to serve as legal documentation that a specific individual has died. In general, the death certificate serves as legal proof that death has occurred, but not as legal proof of the cause of death. The second major purpose of the death certificate is to provide information for mortality statistics that may be used to assess the nation's health, causes of morbidity and mortality, and developing priorities for funding and programs that involve public health and safety issues.

Death certificate information is widely recognized as inadequate as a single source for identification of child abuse and neglect deaths. Misidentification of deaths may occur because of inadequate scene investigation or autopsy procedure, inadequate investigation by law enforcement or child protection, or misdiagnosis by a physician or coroner. Child abuse/neglect fatalities often mimic illness and accidents. Neglect deaths are particularly difficult to identify because negligent treatment often results in illness and infection that can be attributed to natural causes.

Division of Family Services: Child Abuse/Neglect Fatalities

In Missouri, the Division of Family Services is the hub of the child protection community. Since August 2000, all child deaths are reported to the Division of Family Services Central Registry. Any child not dying from natural causes, while under medical care for an established natural disease, is brought to the attention of the division by the coroner or medical examiner. A fatality report is taken and, when appropriate, the report is accepted for investigation of child abuse/neglect by the division. The Child Fatality Review Program is immediately notified of all fatality reports. The division is also responsible, if ordered by a judge, for protecting any other children in the household until the investigation is complete and their safety can be assured.

After a report of child abuse or neglect has been made, investigations that return sufficient evidence supporting the report are classified as *probable cause child abuse and neglect*. When there is probable cause to believe that a child who has died was abused or neglected, or when this finding is court-adjudicated, that death is considered by the division to be a *probable cause child abuse/neglect fatality*. Thus, reports classified by the division as *probable cause child abuse/neglect fatalities* include deceased children whose deaths may or may not have been a direct result of the abuse or neglect. (An example would be a young child, allowed to cross a highway alone, who was struck by a vehicle and died of blunt trauma injuries. That death was included as a pedestrian fatality in this CFRP Annual Report, with Inadequate Care as a contributing factor. DFS determined that there was probable cause to believe that this child was a victim of neglect, specifically, lack of supervision.)

The Missouri Child Fatality Review Program: Fatal Child Child Abuse and Neglect

Child fatalities represent the extreme of all issues that have a negative impact on children. Despite an increasing awareness of severe violence against children, very little was known in the past about fatal child abuse and neglect. In the late-1980's, Missouri researchers discovered that many fatal child injury cases were inadequately investigated and that many children were dying from common household hazards with inadequate supervision. Many cases of fatal abuse and neglect went undetected, misclassified as natural deaths, accidents or suicides. The information necessary for a thorough investigation of a child death was distributed among agencies, which could not share records. In 1992 Missouri initiated a comprehensive, statewide child fatality review system. The CFRP review process has resulted in better investigations, more timely communication, improved training and technical assistance, and standardized data collection that allows us to understand much more about how our children die, the circumstances in which they die and who may be responsible.

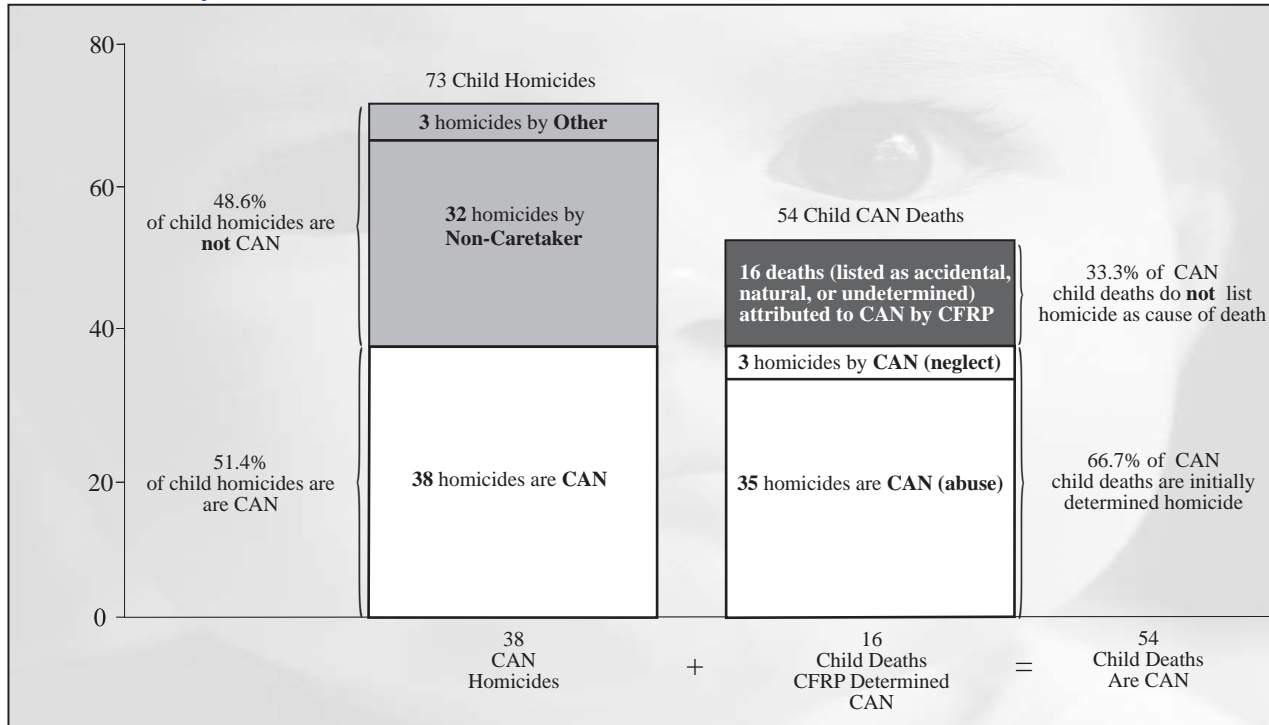
The Child Fatality Review Program annual reports for 1999 and 2000 refined the reporting and analysis of CFRP data in many ways, including an examination of data concerning "Fatal Child Abuse and Neglect." Those numbers represented a subset of child fatalities reported as *homicide* by death certificate. These changes allowed us to begin to understand much more about how Missouri children die, the circumstances in which they die and who may be responsible.

The Child Fatality Review Program defines *Fatal Child Abuse and Neglect* as child deaths resulting directly from inflicted physical injury and/or grossly negligent treatment by a parent or caretaker, regardless of motive or intent. This number includes, but is no longer limited to, children whose deaths were reported as homicide by death certificate; their death certificate manners of death may include natural, accident or undetermined (see Appendices 6 and 7 for additional information).

In 2001, **54** Missouri children died of Fatal Child Abuse and Neglect: **35** suffered Fatal Inflicted Injuries and **19** children were identified as victims of Grossly Negligent Treatment.

Fatal Child Abuse and Neglect: Inflicted Injury

Child Abuse/Neglect (CAN)
Child Fatality Review Panel (CFRP) - 2001



In the United States, the majority of fatal inflicted injury deaths among children result from abusive head trauma, commonly known as Shaken Baby Syndrome (SBS). In Missouri in 2001, **21** (60%) of the **35** children who died from inflicted injury at the hands of a parent or caretaker were victims of abusive head trauma (SBS).

The next most common type of physical abuse deaths involve punching or kicking the abdomen, resulting in massive internal injuries and bleeding. Infants and young children are especially vulnerable because vital organs are in close proximity with each other; the ribs are small and cannot protect vital internal organs. In 2001, **14** (40%) Missouri children died of various inflicted injuries that include punching, kicking or throwing (**5**), suffocation (**2**), fire/burn (**2**), firearm (**4**) and carbon monoxide (**1**). (Two children were shot by their mother, who then turned the gun on herself. Another child and mother died in a murder/suicide event using carbon monoxide.)

Child Abuse & Neglect Fatalities by Age	
<1 year	14
1 - 4 years	13
5 - 9 years	5
10 - 14 years	5
15 - 17 years	1

Child Abuse & Neglect Fatalities by Race and Sex			
Females	14	White	23
Males	24	Black	15

Child Abuse & Neglect Fatalities by Cause			
Firearm	4	Confinement	1
Fire / Burn	2	Drowning	1
Withhold of fluids and food from a totally dependant CP patient	1	Suffocation	2
Other physical injury (includes blunt force trauma resulting from striking or throwing)	5	Poisoning	1
		Shaken	21

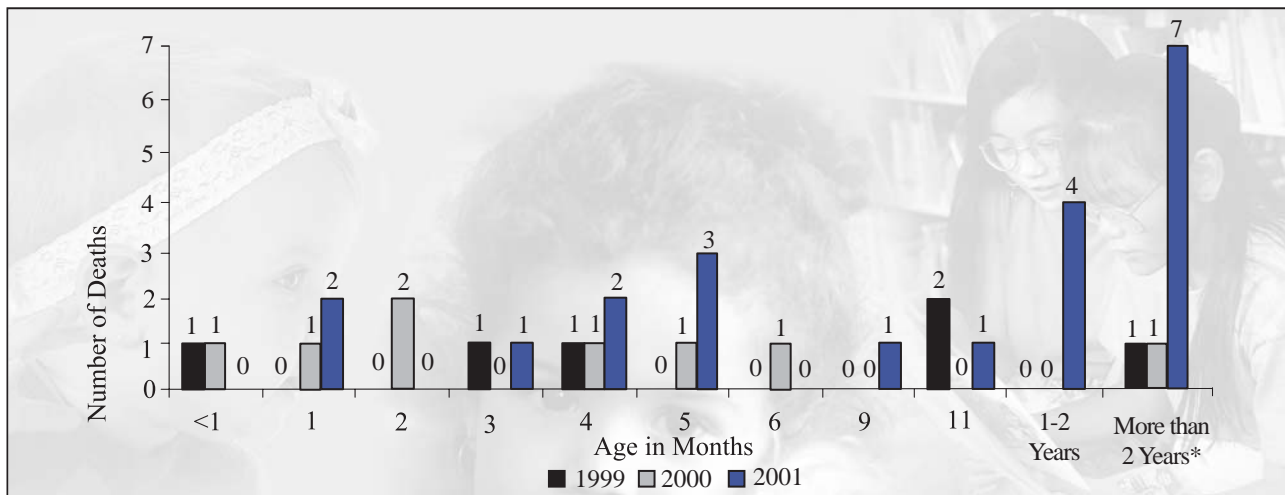
Shaken Baby Syndrome

The most common mechanism of child abuse fatalities in the United States is abusive head trauma or Shaken Baby Syndrome (SBS), which involves the violent shaking of an infant or young child, usually under the age of 4 years. Babies' heads are large and heavy in proportion to their total body weight and their neck muscles are too weak to support such a disproportionately large head. Because a baby's brain is immature, it is more easily injured. When an infant or young child is violently shaken, the head rotates wildly on the axis of the neck, resulting in rotation of the brain within the skull. Brain tissue is bruised or destroyed.

Shaken Baby Syndrome involves an *extremely violent* act. Age-appropriate play, gentle shaking to awaken an unconscious child and CPR do not cause the massive destruction seen in Shaken Baby Syndrome. Short falls from sofas, beds and changing tables, and falls associated with the caretaker falling while carrying the child, do not produce the severe brain injuries of Shaken Baby Syndrome.

Immediate consequences include a decreased level of consciousness and seizures; breathing may stop; the heart may stop and the baby may die. Shaken Baby Syndrome is so lethal that 20-25% of SBS victims die of their injuries. Long term consequences for survivors may include physical disabilities, blindness, speech disabilities, seizures, learning disabilities and death. For survivors, research has established that a significant number of SBS cases are unrecognized and underreported.

Of the **35** Missouri children who died of fatal inflicted injury in 2001, **21** (60%) were victims of Shaken Baby Syndrome.

Figure 35. Shaken Baby Syndrome Deaths by Age

Note: In 1999, one child is not included in this chart. Although the cause of death was SBS, the child was 9 years old.
 *Includes "late deaths" of children who were shaken as infants or toddlers.

Figure 36. Shaken Baby Syndrome Deaths by Sex and Race

Sex	1999	2000	2001	Race	1999	2000	2001
Female	3	2	15	White	3	5	13
Male	3	6	6	Black	3	3	8
	6	8	21		6	8	21

Deliberate shaking of an infant or young child is usually the result of frustration or anger. This occurs most often when the baby won't stop crying. Other triggering events include toilet training difficulties and feeding problems.

Figure 37. Shaken/Impact Syndrome Deaths by Cause

Cause	Number of Deaths
Crying	9
Toilet Training	3
Other	2
Unknown	7
	21

Perpetrators of Shaken Baby Syndrome can be anyone. Most individuals who shake infants do not fall into a specific category, yet research shows that certain characteristics make a person more at risk of being a perpetrator. For example, research has established that fathers and other male caretakers are the most frequent perpetrators of SBS. **Twelve** (57%) perpetrators of fatal SBS in 2001 were fathers and other male caretakers.

Figure 38. Perpetrators of Shaken/Impact Syndrome Deaths

Perpetrator	Number of Deaths
Father	6
Mother	3
Stepfather	1
Mother's Paramour	4
Foster Parents (Female)	2
Child Care Worker	2
Other Child (13 yrs boy)	1
Unknown	2
	<hr/> 21

Fatal Child Abuse and Neglect: Negligent Treatment

Negligent treatment of a child is an act of omission, which is often fatal when due to grossly inadequate physical protection or withholding nutrition or health care necessary to preserve life. Child deaths resulting from grossly negligent treatment are frequently difficult to identify because neglect often results in illnesses and infections that can be attributed to natural causes or exposure to hostile environments or circumstances that result in fatal “accidents.”

Definitions of negligent treatment vary depending on whether one takes a legal, medical, psychological, social service or lay perspective. There are broad, widely recognized categories of neglect that include: *physical neglect*, *emotional neglect*, *medical neglect*, *neglect of mental health*, and *educational neglect*. Within those definitions, there are subsets, as well as variations in severity that often include *severe* or “*nearly-fatal*” and *fatal*. Negligent treatment may or may not be intentional; however, the end result for the child is the same whether the parent is willfully neglectful (e.g. out of hostility) or neglectful due to factors such as ignorance, depression or overwhelming stress and inadequate support.

Grossly Negligent Treatment

Grossly negligent treatment by a parent or caretaker generally involves failure to protect from harm and withholding or otherwise failing to provide food, shelter, or medical care necessary to meet the child's basic needs. This level of negligence is egregious and surpasses momentary inattention or a temporary condition; it is often part of a pattern of negligent treatment. Child deaths often result when a parent or caretaker fails to inadequately supervise the child, usually for extended periods of time.

In some cases, “failure to protect from harm” or failure to meet basic needs involves exposure to a hostile environment or a hazardous situation with potential for serious injury or death. An example would be a mother who allowed her young child to ride in a vehicle with a driver who was known to be drunk. Another example is a toddler, left alone in a parked vehicle for over an hour, who died as a result of exposure to excessive heat.

Medical neglect, as a form of grossly negligent treatment, refers to failure to provide prescribed medical treatment or emergency medical care for a known illness or injury with potential for a serious or fatal outcome. Examples include untreated diabetes or asthma.

In 2001, **19** Missouri were identified by the Child Fatality Review Program as victims of grossly negligent treatment that resulted in death.*
Circumstances of grossly negligent treatment include the following:

Children left unattended in and around motor vehicles, (all <3 years of age) resulting in exposure to excessive heat.	7
Children left unattended in home for an extended period of time died of suffocation by entrapment	3
Malnutrition/failure to thrive in an infant	1
Starvation of a handicapped child	1
Dehydration in an infant, due to heat exposure/unsanitary living conditions	1
Motor vehicle fatalities in which the child was allowed to ride with an adult, who was known to be drunk	2
Victim of chronic neglect and lack of supervision, mauled by dogs	1
Bathtub drowning that occurred while mother was under the influence of methamphetamine/withholding of emergency medical care	1
Medical neglect/withholding medical treatment for known, potentially fatal disease	2

*Note that, for data purposes, 16 of the 19 deaths listed were not designated as homicide by death certificate; they are included in the data for the appropriate Illness/Natural Cause or Unintentional Injury category, according to the cause and circumstances. It should also be noted that this group of children was not included in Fatal Child Abuse and Neglect totals in previous CFRP Annual Reports.

Prevention Recommendations:

For parents:

- Report child abuse and neglect.
- Seek crisis help through the Parent Helpline (800-367-2543) or ParentLink (800-552-8522).

For community leaders and policy makers:

- Support and fund home-visitation child abuse prevention programs that assist parents.
- Enact and enforce laws that punish those who harm children.

For professionals:

- Support and facilitate public education programs that target male caretakers and child care providers.
- Expand training on recognition and reporting of child abuse and neglect.
- Support development and training for multidisciplinary teams to investigate child abuse.

For Child Fatality Review Panels:

- The role of CFRP panels is critical in identifying fatal child abuse, protecting surviving children, and ensuring that the family receives appropriate services. CFRP panels provide important data that enhances our ability to identify those children who are most likely to be abused and intervene before they are harmed.

Resources and Links:

National Committee to Prevent Child Abuse www.childabuse.org
 American Academy of Pediatrics www.aap.org
 Harborview Injury Prevention and Research Center <http://depts.washington.edu/hiprc>
 Missouri Children's Trust Fund
 (Missouri's Foundation for Child Abuse Prevention) www.ctf4kids.org
 The National Center on Shaken Baby Syndrome www.dontshake.com
 U.S. Department of Justice,
 Office of Juvenile Justice and Delinquency Prevention . . www.ojjdp.ncjrs.org
 ChildAbuse.com www.childabuse.com

Suicides

**Suicide was the manner of death
of 23 Missouri children in 2001.**

Representative Cases:

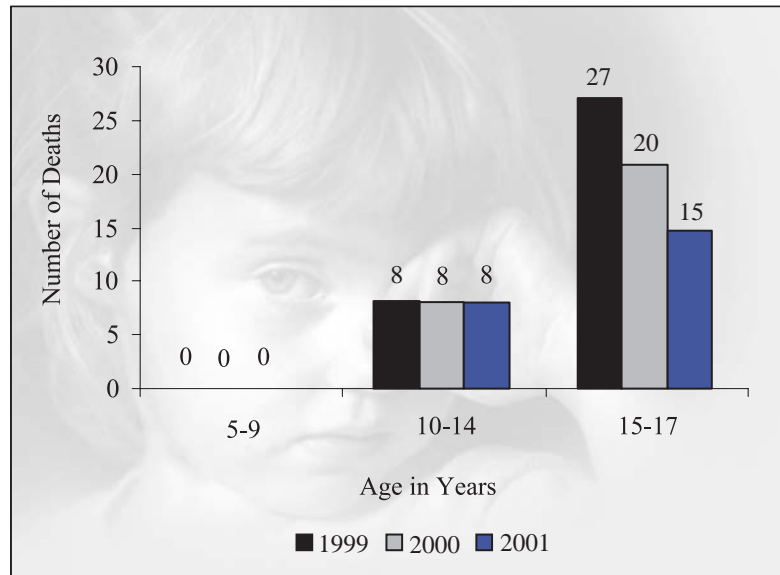
- **Parents and professionals responsible for children must be educated to recognize and respond to risk factors for suicide.**

A 14-year-old male with prior mental health issues shot himself with a .22 caliber rifle in his bathroom. He had a lengthy history with the local juvenile office because of his behavior problems.

A 13-year-old female with a past medical history of depression was found dead after overdosing on a prescription drug. Upon autopsy, there was evidence of several prior attempts and self-mutilation.

A 16-year-old male, who had recently broken up with his girlfriend shot himself with a pistol while on the phone with her. He had no prior history and had not talked of suicide. A note was found at the scene.

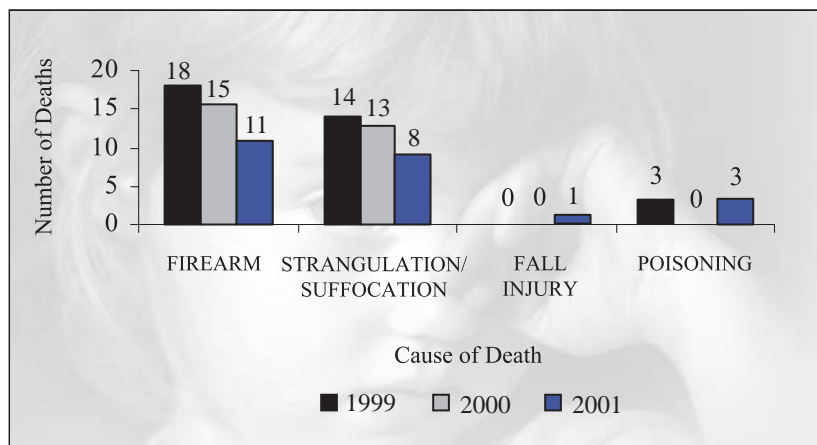
In Missouri and the United States, suicide is the third leading cause of death for young people following unintentional injuries and homicides. The suicide rate among young teens and young adults increased by more than 300% in the last three decades and rates continue to remain high. In Missouri in 2001, **23** children died of self-inflicted injury; **15** were age 15-17; the remaining **8** were children age 10-14.

Figure 39. Suicides by Age

White males comprise the majority of adolescent suicide victims in Missouri. Although more females attempt suicide than males, males are approximately three times more likely to die from suicide.

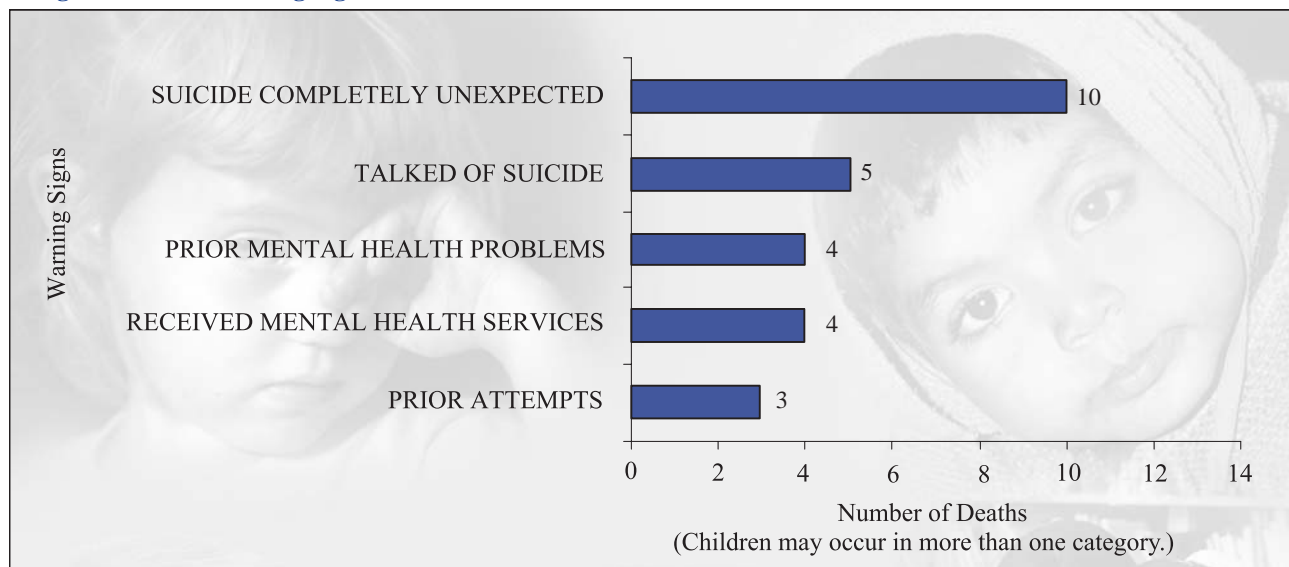
Figure 40. Suicides by Sex and Race

Sex	1999	2000	2001	Race	1999	2000	2001
Female	9	4	3	White	31	24	18
Male	26	24	20	Black	4	4	5
	35	28	23		35	28	23

Figure 41. Suicides by Mechanism

Firearms and suffocation/strangulation are the most common mechanisms of suicide among Missouri children.

Figure 42. 2001 Warning Signs of Suicide



Of the **23** suicide victims age 17 and under, **10** (43%) had displayed one or more warning signs.

Preventing youth suicide:

Suicidal behaviors in young people are usually the result of a process that involves multiple social, economic, familial and individual risk factors, with mental health problems playing an important part in its development. Identified risk factors for suicide and attempted suicide for young people include: mood disorders, substance abuse, certain personality disorders, low socioeconomic status, childhood maltreatment, parental separation or divorce, inappropriate access to firearms and interpersonal conflicts or losses. Only a few studies have examined protective factors among youth for suicidal behavior. Both parent-family connectedness and perceived school connectedness have been shown to be protective against suicidal behavior.

A Summary of Suicide Risk and Protective Factors (Youth and Young Adults)

Suicidal behavior emerges out of a complex and dynamic interplay between an array of individual, social and environmental risk and protective factors. While we know that those at greatest risk are single, young (15-24), Caucasian and aboriginal males, suffering from major depression and substance abuse with easy access of firearms, the reality is that many young people who kill themselves do not fit this statistically determined profile. The chart on the next page summarizes some of the most well known risk/protective factors. Note that it is not an exhaustive list.

The chart is from “Best Practices in Youth Suicide Prevention”, developed by the Suicide Prevention Information and Resource Centre (SPIRC) of British Columbia Faculty of Medicine, UBC; 2250 Westbrook Mall, Vancouver, BC, Canada V6T 1W6; email: spirc@interchange.ubc.ca; a more complete discussion can be found in a subsequent document developed by SPIRC: “Practice Principles: A Guide for Mental Health Clinicians Working With Suicidal Children and Youth” www.mcf.gov.bc.ca/youth/suicid_%20prev_manual.pdf

Key Context	Predisposing Factors	Contributing Factors	Precipitating Factors	Protective Factors
Individual	<ul style="list-style-type: none"> • Previous attempt • Depression/Psychiatric disorder • Prolonged or unresolved grief 	<ul style="list-style-type: none"> • Rigid cognitive skills • Poor coping skills • Substance abuse • Sexual orientation issues • Impulsivity • Hypersensitivity 	<ul style="list-style-type: none"> • Personal failure • Humiliation • Individual trauma • Developmental crisis 	<ul style="list-style-type: none"> • Easy temperament • Creative problem-solving • Personal autonomy • Previous experience with self-mastery • Optimistic outlook • Sense of humor
Family	<ul style="list-style-type: none"> • Family history of suicidal behavior/completed suicide • Family violence/abuse • Family history of psychiatric disorder • Early childhood loss/separation • Social isolation & alienation 	<ul style="list-style-type: none"> • Substance abuse within family • Family instability • Ongoing conflict 	<ul style="list-style-type: none"> • Loss of significant family member • Death, especially by suicide 	<ul style="list-style-type: none"> • Family relationships characterized by warmth & belonging • Adults modeling healthy adjustment • High & realistic expectations
Peers	<ul style="list-style-type: none"> • Social isolation & alienation 	<ul style="list-style-type: none"> • Negative youth attitudes toward adult assistance 	<ul style="list-style-type: none"> • Teasing/cruelty • Interpersonal loss • Rejection • Death, especially by suicide 	<ul style="list-style-type: none"> • Social competence • Healthy peer modeling • Acceptance & support
School	<ul style="list-style-type: none"> • Long-standing history of negative school experience • Lack of meaningful connection to school 	<ul style="list-style-type: none"> • Disruption during key transitional periods at school • Reluctance/uncertainty about how to help among school staff 	<ul style="list-style-type: none"> • Failure • Expulsion • Disciplinary crisis 	<ul style="list-style-type: none"> • Presence of adults who believe in them • Parent involvement • Encouragement of participation
Community	<ul style="list-style-type: none"> • Community “legacy” of suicide • Community marginalization • Political disempowerment 	<ul style="list-style-type: none"> • Sensational media portrayal of suicide • Access to firearms or other lethal methods • Reluctance/uncertainty about how to help among key gatekeepers • Inaccessible community resources • Economic deprivation 	<ul style="list-style-type: none"> • High profile/celebrity death, especially by suicide • Conflict with the law/incarceration 	<ul style="list-style-type: none"> • Opportunities for participation • Evidence of hope for the future • Community self determination & solidarity • Availability of resources

Prevention Recommendations:

For parents:

- Seek early treatment for children with behavioral problems, possible mental disorders (particularly depression and impulse-control disorders) and substance abuse problems.
- Limit young people's access to lethal means of suicide, particularly firearms.

For community leaders and policy makers:

- Encourage health insurance plans to cover mental health and substance abuse on the level physical illnesses are covered.
- Support and implement school and community prevention programs designed to address suicide and suicidal behavior as part of a broader focus on mental health, coping skills in response to stress, substance abuse and aggressive behaviors.
- Enact and enforce laws and policies that limit young people's access to firearms and encourages responsible firearms ownership.

For professionals:

- Children who have attempted suicide or displayed other warning signs should receive aggressive treatment attention.

For Child Fatality Review Panels:

- Support or facilitate evidence-based suicide prevention programs in your community.
- In reviewing a possible suicide, consider carefully the warning signs and history of the victim. Consider, also, points of early intervention that can be enhanced in your community to prevent other suicides and suicidal behaviors.

Resources and Links:

National Strategy for Suicide Prevention www.mentalhealth.org/suicideprevention
 American Association of Suicidology www.suicidology.org
 National Center for Suicide Prevention Training www.ncspr.org

SECTION FIVE:

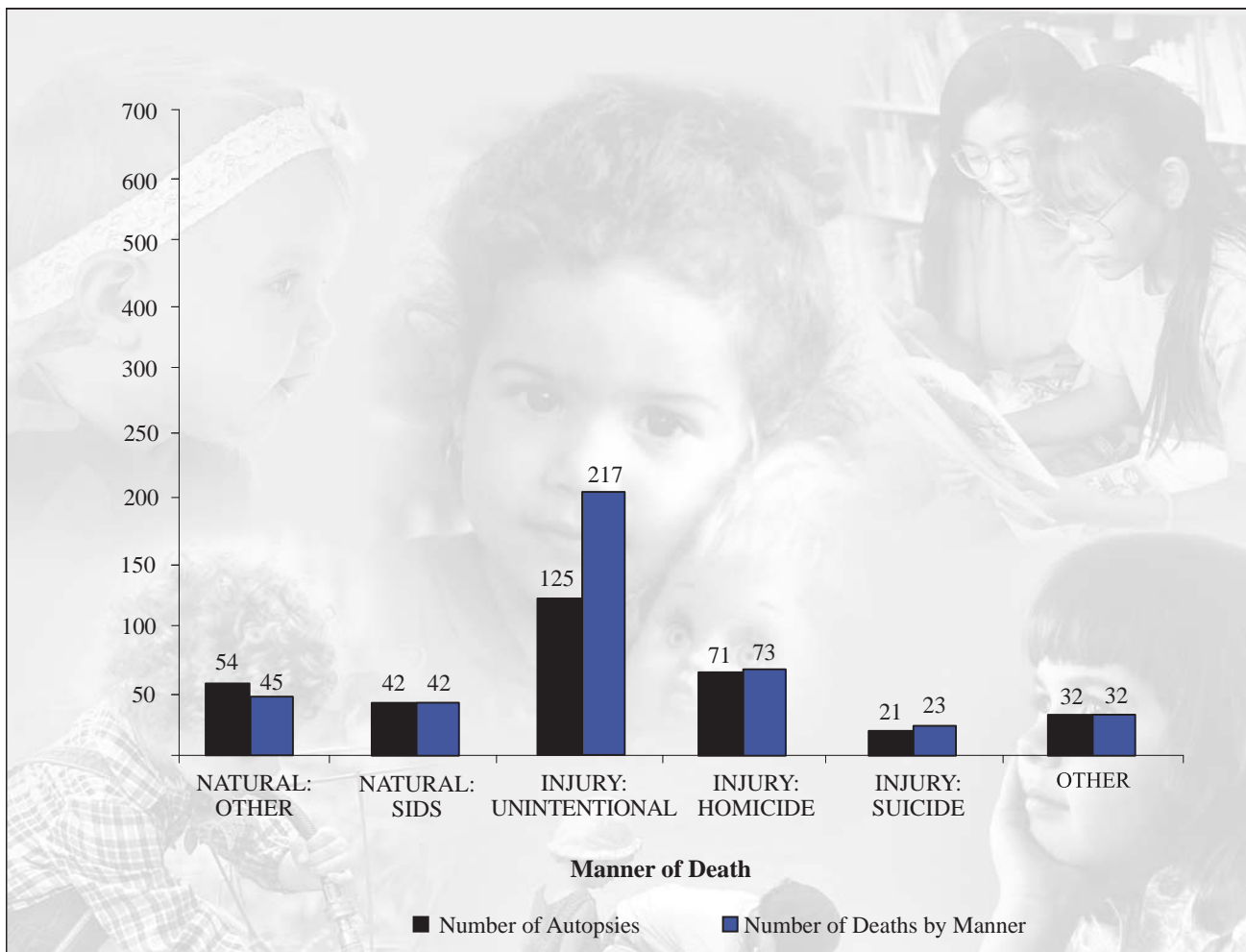
Appendices

Appendix 1. Autopsies

The autopsy is a critical component in accurately determining the cause of death, especially in the case of sudden infant deaths. RSMo 194.117 requires that an autopsy be performed for all children from 1 week to 1 year of age who die in a sudden, unexplained manner.

Missouri's Certified Child-Death Pathologist Network ensures autopsies performed on children, birth through age 17, are performed by professionals with expertise in forensic pediatrics. Additionally, network members are available to consult with coroners and others investigating child deaths. A listing of network members can be obtained through STAT or on the Internet at www.dss.state.mo.us/stat/cpn.htm

Figure 43. Number of Autopsies by Certified Child Death Pathologist for 2001



Appendix 2. Mandated Activities for Child Fatalities

Every county must have a multidisciplinary child fatality review panel (114 counties and City of St. Louis).

The county panel must consist of at least the following seven core members: prosecuting attorney, coroner/medical examiner, law enforcement representative, Division of Family Services representative, public health representative, juvenile officer and emergency medical services representative. Panels may elect to have additional members.

All deaths, ages birth to 17, must be reported to the coroner/medical examiner.

Children, age 1 week to 1 year, who die in a *sudden, unexplained* manner must have an autopsy.

A state CFRP must meet at least twice per year to review the program's progress and identify systemic needs and problems.

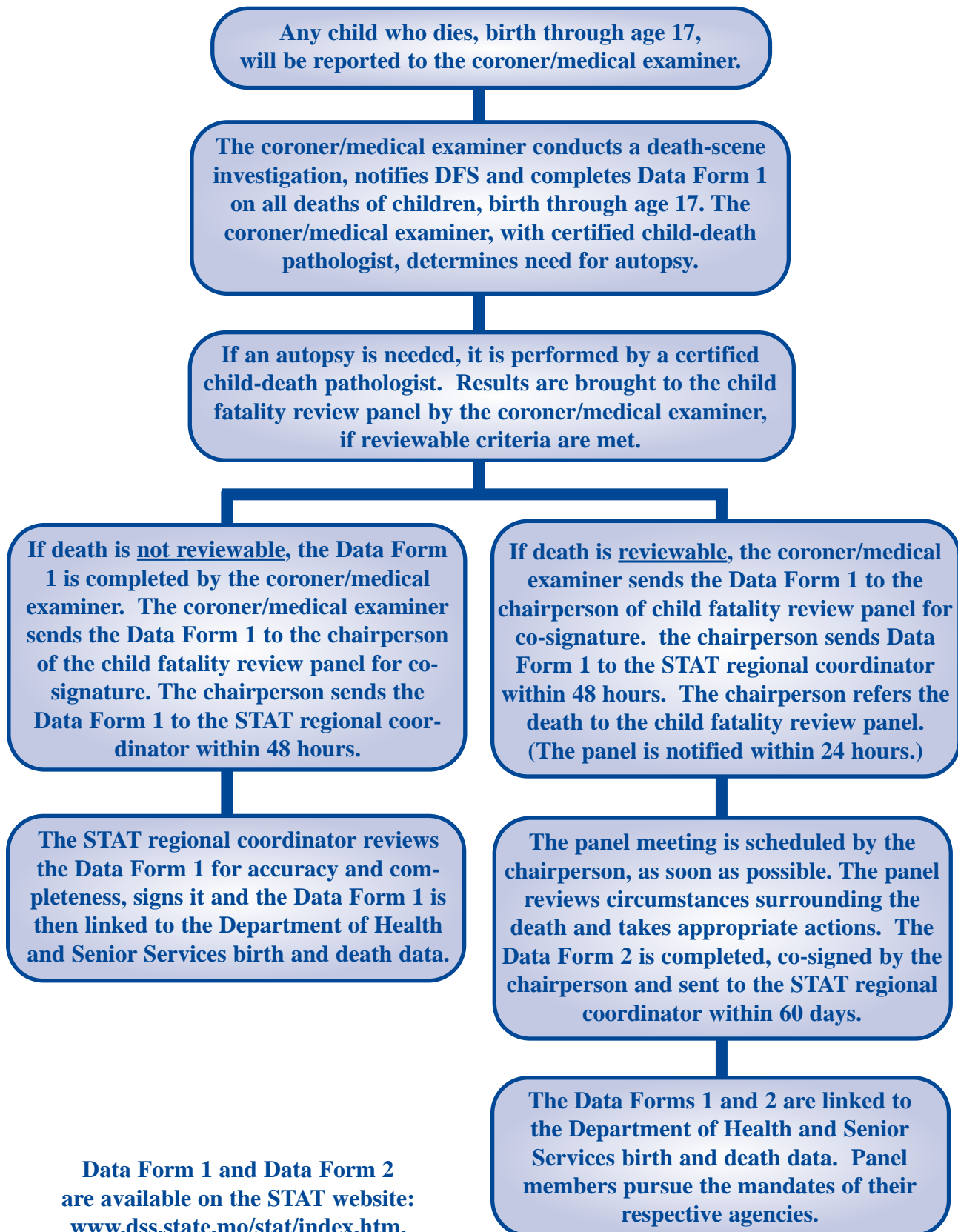
Panels must use uniform protocols and data collection forms.

Certified child-death pathologists must perform the autopsies.

Knowingly violating reporting requirements is a Class A misdemeanor.

When a child's death meets the criteria for review, activation of the panel must occur within 24 hours of the child's death, with a meeting scheduled as soon as practical.

Appendix 3. Review Process



Appendix 4. Missouri Incident Child Fatalities (Age less than 18) by County 1999-2001

County of Event	All Deaths			Reviewed Deaths			Injury Deaths			Census Population
	1999	2000	2001	1999	2000	2001	1999	2000	2001	
ADAIR	2	0	0	1	0	0	0	0	0	4,796
ANDREW	2	4	2	2	2	1	2	1	2	4,348
ATCHISON	0	1	0	0	0	0	0	0	0	1,547
AUDRAIN	1	6	2	0	3	1	0	3	1	6,360
BARRY	5	3	3	3	1	1	3	3	2	8,875
BARTON	3	0	2	2	0	1	2	0	2	3,445
BATES	0	3	2	0	3	1	0	3	1	4,419
BENTON	1	3	2	1	3	2	0	3	1	3,516
BOLLINGER	2	1	0	1	0	0	1	0	0	3,151
BOONE	48	50	38	12	15	13	9	10	11	30,902
BUCHANAN	14	14	13	2	8	6	3	7	4	20,937
BUTLER	15	9	7	9	5	1	5	3	2	9,886
CALDWELL	3	1	2	3	1	2	1	1	1	2,428
CALLAWAY	1	9	9	0	4	6	0	4	4	10,371
CAMDEN	6	6	7	1	3	5	2	2	5	7,508
CAPE GIRARDEAU	9	10	6	3	0	5	1	1	4	16,097
CARROLL	2	0	0	1	0	0	1	0	0	2,589
CARTER	6	0	1	4	0	1	4	0	1	1,493
CASS	1	11	5	0	5	3	1	4	1	23,307
CEDAR	1	2	2	1	2	2	0	2	2	3,382
CHARITON	1	1	1	1	0	1	1	1	1	1,997
CHRISTIAN	3	6	4	1	3	3	2	3	1	15,114
CLARK	0	0	1	0	0	1	0	0	1	1,852
CLAY	29	23	22	18	12	9	13	5	4	47,530
CLINTON	1	4	1	0	0	1	0	3	1	5,079
COLE	10	21	11	7	10	9	7	8	4	17,294
COOPER	1	1	3	0	0	3	0	0	3	3,801
CRAWFORD	4	6	1	3	5	0	2	6	1	5,990
DADE	0	0	2	0	0	2	0	0	2	1,928
DALLAS	2	4	6	0	3	2	2	2	1	4,302
DAVIESS	1	2	2	1	1	2	0	1	2	2,162
DE KALB	1	2	1	1	2	1	1	2	0	2,403
DENT	4	0	1	2	0	0	3	0	0	3,716
DOUGLAS	7	0	5	5	0	2	6	0	2	3,382
DUNKLIN	7	10	2	6	5	0	3	2	0	8,613
FRANKLIN	15	12	12	12	6	11	10	5	9	25,661
GASCONADE	2	2	2	0	1	1	2	2	1	3,800
GENTRY	0	1	0	0	0	0	0	0	0	1,782
GREENE	52	52	55	14	6	12	13	7	10	53,501
GRUNDY	2	1	3	0	0	1	1	1	1	2,424
HARRISON	1	1	1	0	1	1	0	1	0	2,103
HENRY	2	6	3	1	4	3	1	4	1	5,220
HICKORY	0	1	1	0	0	1	0	1	1	1,782
HOLT	1	0	0	1	0	0	1	0	0	1,272

Appendix 4. Missouri Incident Child Fatalities (Age less than 18) by County 1999-2001

County of Event	All Deaths			Reviewed Deaths			Injury Deaths			Census Population
	1999	2000	2001	1999	2000	2001	1999	2000	2001	
HOWARD	0	0	1	0	0	1	0	0	1	2,451
HOWELL	3	8	4	1	4	3	2	5	3	9,676
IRON	2	3	2	2	3	2	2	2	2	2,673
JACKSON	171	130	181	84	65	71	49	32	45	168,766
JASPER	14	11	12	6	3	9	2	6	5	26,952
JEFFERSON	23	29	16	18	18	12	13	15	10	55,270
JOHNSON	8	6	9	4	4	6	6	4	5	12,124
KNOX	4	1	0	3	1	0	4	0	0	1,087
LACLEDE	4	5	7	3	4	3	2	1	1	8,675
LAFAYETTE	3	5	3	2	4	2	3	4	1	8,636
LAWRENCE	6	8	2	2	4	1	2	3	1	9,578
LEWIS	0	2	0	0	0	0	0	2	0	2,627
LINCOLN	10	10	6	8	6	4	8	4	4	11,691
LINN	2	0	0	2	0	0	1	0	0	3,489
LIVINGSTON	5	1	4	2	1	1	2	0	1	3,553
MCDONALD	5	8	3	0	8	3	4	5	2	6,259
MACON	1	2	7	0	2	4	0	0	2	3,820
MADISON	3	1	1	1	1	0	2	0	0	2,904
MARIES	3	1	1	2	1	1	1	1	1	2,318
MARION	0	3	4	0	1	0	0	1	0	7,269
MERCER	0	1	1	0	1	1	0	1	1	864
MILLER	3	3	0	2	1	0	3	1	0	6,198
MISSISSIPPI	1	4	2	1	2	1	0	2	1	3,534
MONITEAU	5	6	2	3	6	2	3	5	2	3,836
MONROE	4	3	1	1	1	1	1	2	1	2,410
MONTGOMERY	0	3	2	0	2	2	0	2	2	3,085
MORGAN	2	2	2	2	1	2	2	0	1	4,595
NEW MADRID	4	2	6	1	0	0	2	2	4	5,223
NEWTON	19	20	16	2	6	4	3	6	4	13,819
NODAWAY	1	2	1	1	0	0	1	2	0	4,245
OREGON	3	2	0	0	1	0	3	0	0	2,515
OSAGE	1	2	5	1	0	2	0	2	4	3,437
OZARK	0	2	1	0	2	0	0	1	0	2,107
PEMISCOT	7	6	1	4	2	1	2	1	1	6,015
PERRY	5	3	3	1	3	1	3	3	1	4,715
PETTIS	10	5	6	8	3	4	7	2	3	10,377
PHELPS	10	12	3	6	6	3	7	8	0	9,442
PIKE	3	2	1	0	1	0	2	0	1	4,293
PLATTE	6	17	5	3	3	2	1	3	2	19,026
POLK	4	5	2	2	0	2	4	2	0	6,947
PULASKI	11	4	6	6	2	4	4	2	3	11,338
PUTNAM	0	1	0	0	0	0	0	1	0	1,254
RALLS	2	1	4	2	1	2	2	1	3	2,429
RANDOLPH	7	2	0	4	1	0	4	1	0	5,874
RAY	2	2	3	2	0	2	0	1	2	6,433
REYNOLDS	0	0	4	0	0	2	0	0	1	1,608
RIPLEY	3	1	0	3	1	0	2	1	0	3,352

Appendix 4. Missouri Incident Child Fatalities (Age less than 18) by County 1999-2001

County of Event	All Deaths			Reviewed Deaths			Injury Deaths			Census Population
	1999	2000	2001	1999	2000	2001	1999	2000	2001	
ST CHARLES	24	31	26	17	15	12	14	9	9	82,248
ST CLAIR	3	1	1	0	1	0	3	0	1	2,219
ST FRANCOIS	6	14	9	5	11	7	2	3	4	13,335
ST LOUIS COUNTY	182	186	193	54	62	54	24	26	32	255,991
STE GENEVIEVE	2	3	3	0	1	2	1	2	2	4,749
SALINE	2	3	6	1	1	3	1	1	3	5,773
SCHUYLER	0	1	1	0	0	0	0	1	0	1,027
SCOTLAND	0	1	0	0	0	0	0	0	0	1,423
SCOTT	8	7	8	1	4	3	0	4	1	11,085
SHANNON	0	0	1	0	0	1	0	0	1	2,199
SHELBY	1	1	0	0	1	0	0	1	0	1,729
STODDARD	4	3	4	2	2	2	2	2	0	7,093
STONE	0	4	7	0	4	4	0	1	2	6,138
SULLIVAN	0	1	0	0	0	0	0	0	0	1,807
TANEY	1	6	3	0	3	1	0	5	1	8,912
TEXAS	3	6	4	2	2	2	1	3	1	5,734
VERNON	7	3	4	2	1	2	1	1	1	5,436
WARREN	4	2	1	2	2	1	2	2	1	6,586
WASHINGTON	1	2	5	0	1	5	0	1	4	6,205
WAYNE	0	1	1	0	1	1	0	0	0	3,079
WEBSTER	4	4	3	2	1	2	2	2	1	8,957
WORTH	0	0	0	0	0	0	0	0	0	579
WRIGHT	1	5	0	0	2	0	1	1	0	4,877
ST LOUIS CITY	212	160	169	65	70	72	36	31	43	89,657
STATE TOTAL	1,113	1,081	1,032	467	475	452	352	334	318	1,427,692

Appendix 5. Missouri Incident Child Fatalities (Age less than 18) by Age, Sex and Race 1999-2001

Characteristic	All Deaths			Reviewed Deaths			Injury Deaths		
	1999	2000	2001	1999	2000	2001	1999	2000	2001
Age of Child									
0	664	616	611	176	192	166	45	44	52
1	34	32	35	21	17	17	14	9	14
2	21	31	26	15	22	17	10	17	15
3	21	25	27	10	19	15	7	14	11
4	9	12	14	5	8	12	6	7	10
5	12	21	12	8	13	8	5	13	7
6	18	21	9	12	13	5	11	12	5
7	12	20	14	9	11	9	9	11	8
8	17	17	16	9	10	9	11	10	7
9	9	16	8	4	8	4	4	6	4
10	16	22	17	10	12	10	9	10	11
11	18	14	15	11	10	10	9	7	9
12	21	13	10	14	10	6	12	7	4
13	16	20	15	11	13	8	9	12	7
14	24	35	30	19	15	24	21	22	22
15	46	37	47	31	26	35	37	24	33
16	72	63	52	44	33	37	61	52	39
17	83	65	73	58	42	59	72	56	59
21*	0	1	0	0	1	0	0	1	0
unknown	0	0	1	0	0	1	0	0	1
TOTAL	1,113	1,081	1,032	467	475	452	352	334	318
Sex of Child									
Male	673	618	611	302	275	268	236	215	198
Female	440	463	421	165	200	184	116	119	120
TOTAL	1,113	1,081	1,032	467	475	452	352	334	318
Race of Child									
White	770	787	706	304	320	306	266	262	221
Black	328	284	310	156	152	141	82	69	93
Other	11	6	9	5	1	3	3	2	3
Unknown	4	4	7	2	2	2	1	1	1
TOTAL	1,113	1,081	1,032	467	475	452	352	334	318

* Child disappeared at age 15, remains were found 6 years later in 2000.

Appendix 6. Definitions of Important Terms and Variables

Certified Death:

Death included in the Department of Health, Missouri Center for Health Statistics (MCHS) mortality file, **reported by the death certificate.**

Missouri Incident Death:

Death within Missouri of a child younger than 18 years. On the basis of data from the CFRP Data Form 1 or Data Form 2, one of the following is true:

- The child died as a result of an injury which occurred in Missouri.
- The child died as a result of a natural (non-injury) cause which occurred, or is assumed to have occurred, within Missouri. (This excludes deaths due to illness or other natural cause which occurred outside Missouri; e.g., a non-Missouri residence.)
- The child was born in Missouri and died as a newborn (within ten days of birth) without having left the state.

CFRP Cause of Death:

Cause of death as reported on CFRP Data Forms 1 and 2. The forms include a category for natural cause which includes congenital anomalies, perinatal conditions, and Sudden Infant Death Syndrome (SIDS), sudden unexplained death and injuries classified by the type of agent or force which caused the injury (i.e., vehicular, drowning, firearm, fall, poisoning). The CFRP provides for an indication of whether or not the injury was inflicted, that is, whether it occurred as a result of the action of another person, without regard to intent or purpose of the action. If the case is referred to the CFRP panel for review, Data Form 2 is completed to report the findings of the panel. The Data Form 2 report includes information relevant to possible child abuse and neglect and information related to criminal proceedings.

Mortality File Cause of Death:

The Department of Health Mortality File lists cause of death as reported by the ICD-10 code on Missouri death certificates. The ICD-10 coding classification system includes natural causes such as various diseases, congenital anomalies, perinatal conditions and certain ill-defined conditions (which includes SIDS). The injury classification includes those identified as “accidents” (unintentional), those considered intentional (homicide, suicide) and those with undetermined intent. Injury deaths are further classified by the type of agent or force which caused the injury (i.e., motor vehicle crash, firearm, poisoning, burn, fall, drowning).

Mortality File Manner of Death:

Cause of death reported in mortality file was formatted to conform to “Manner of Death” variable in the death certificate. This includes six categories based on the ICD-10 code: Natural; Accident; Suicide; Homicide; Undetermined; and Pending Investigation.

Appendix 6. Definitions of Important Terms and Variables

Sudden Infant Death Syndrome (SIDS):

Sudden death of an infant under one year of age which remains unexplained after a thorough case investigation, including performance of a complete autopsy, examination of the death scene and review of clinical and social history.

- Mortality File SIDS: Death by SIDS, as defined operationally by being reported in the mortality file associated with the ICD-10 code 7980.
- CFRP SIDS: Death by SIDS, as defined operationally by being reported in the CFRP file, from Data Form 1 and Data Form 2, as due to SIDS.

Sudden, Unexplained Infant Death:

Sudden death of an infant less than one year of age due to unexplained cause, requiring the postmortem examination, scene investigation or review of social and medical history. Defined operationally by being reported as sudden, unexplained death on Data Form 1.

Reviewable Death:

Death which has been reported by Data Form 1 as requiring review by the CFRP panel, whether or not the review has yet been completed and reported. The Data Form 1 report is required for all child deaths that occur in Missouri, and includes an indication of whether a review of that death will be required. If Data Form 1 indicates a reviewable death, Data Form 2 should be completed after the review.

Reviewed Death:

Death that has been reviewed by a local CFRP panel and reported on Data Form 2.

Mortality File County of Death:

The county, reported in the mortality file, in which the death was officially recorded. May be a Missouri or non-Missouri county.

CFRP County of Death:

The county, reported by the Data Form 1 and Data Form 2, in which the death occurred. Only deaths in Missouri are included in the CFRP database.

CFRP County of Incident:

The county, reported by Data Form 1 and Data Form 2, in which the fatal illness, injury or event occurred. If the county of incident is a Missouri county, the death is by definition a Missouri incident death. If the county of incident is outside the state of Missouri, the death is by definition not a Missouri incident death. If the county is in Missouri, but the county of incident is not, only identifying information (Section A of Data Form 1) is requested.

CFRP County of Residence:

The county, reported by Data Form 1 or Data Form 2, as the county of decedent's residence may be a Missouri or non-Missouri county. If the child is a newborn, the newborn's county of residence is the mother's county of residence.

CFRP Region:

Location, reported by Data Form 1 and Data Form 2, in which the fatal illness, injury or event occurred, formatted to conform to the seven geographic regions defined for the CFRP program.

Appendix 6. Definitions of Important Terms and Variables

Division of Family Services Child Abuse/Neglect (CA/N):

Death for which the Division of Family Services (DFS) reports probable cause findings for child abuse or neglect. Probable cause may result from DFS investigation or court adjudication. Abuse refers to physical, sexual or emotional maltreatment or injury inflicted on a child, other than accidentally, by those responsible for the child's care, custody and control. Neglect refers to failure by those responsible for the child's care, custody and control to provide the proper or necessary support, education, nutrition, medical care or other care necessary for the child's well-being.

CFRP Fatal Child Abuse and Neglect:

Child death resulting directly from inflicted physical injury and/or negligent treatment by parent or caretaker, regardless of motive or intent.

Mortality File Child Abuse/Neglect:

Death for which the ICD-10 code in the mortality file indicates abuse or neglect. Relevant ICD-10 codes are 904.0, 967 and 968.4. these abuse/neglect deaths are usually under-reported relative to those reported by DFS as substantiated child abuse or neglect.

Mortality File Homicide Death:

Manner of death due to homicide, as reported by ICD-10 codes 960-979.

Mortality File Suicide Death:

Manner of death due to suicide, as reported by ICD-10 codes 950-959.

Mortality File Autopsy:

Indication from mortality file that decedent was autopsied.

CFRP Autopsy:

Indication from CFRP file that decedent was autopsied and how the autopsy was paid for.

Appendix 7. Death Certificate Manner of Death

(Summarized from: *A Guide for Manner of Death Classification*, draft presented to the National Association of Medical Examiners, September 24, 2001, prepared by Randy Hanzlick, M.D., John Hunsaker III, M.D., and Gregory J. Davis, M.D.)

All states have a standard death certificate that is based upon a model certificate called the US Standard Certificate of Death. The *certifier of death* is the physician, medical examiner or coroner who completes the cause of death section of the certificate that also includes details about the circumstances surrounding the death. Manner of death is one of the items that must be reported on the death certificate and a classification of death based on the circumstances surrounding a particular cause of death and how that cause came into play. In most states, the acceptable options for manner of death classification are: Natural, Accident, Suicide, Homicide and Undetermined.

The death certificate is used for two major purposes. One is to serve as legal documentation that a specific individual has died. In general, the death certificate serves as legal proof that death has occurred, but **not** as legal proof of the cause of death. The second major purpose of the death certificate is to provide information for mortality statistics that may be used to assess the nation's health, cause of morbidity and mortality and developing priorities for funding and programs that involve public health and safety issues.

Manner of death is an American invention. A place to classify manner of death was added to the US Standard Certificate of Death in 1910. It was added to the death certificate by public health officials to assist in clarifying the circumstances of death and how an injury was sustained - not as a legally binding opinion. In general, the certifier of death completes the cause of death section and attest that, *to the best of the certifier's knowledge*, the person stated died of the cause(s) and circumstances reported on the death certificate. Information on the death certificate may be changed, if needed.

There are basic, general "rules of thumb" for classifying manner of death.

- Natural deaths are due solely or nearly totally to disease and/or the aging process.
- Accident applies when an injury or poisoning occurred with intent to harm or cause death. In essence, the fatal outcome was unintentional.
- Suicide results from an injury or poisoning as a result of an intentional, self-inflicted act committed to do self-harm or cause the death of one's self.
- Homicide occurs when death results from a volitional act committed by another person to cause fear, harm or death. Intent to kill is a common element but is **not** required for classification as homicide.
- Undetermined is used when the information pointing to one manner of death is no more compelling than one or more other competing manners of death when all available information is considered.

In evaluating the manner of death in cases involving external causes or factors (such as injury or poisoning), injuries are often categorized as "intentional" (such as inflicted injury in child abuse) or "unintentional" (such as falling from a building). Intent is much more apparent in some cases than in others and it is often difficult to assess a victim's or perpetrator's intent. The concept of "voluntary acts" or volition is helpful. In general, if a person's death results at the "hands of another" who committed a harmful volitional act directed at the victim, the death may be considered a homicide from the death investigation standpoint.

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